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Original Contributions.

CONTOUR FILLING.

By W. E. Grant, D.D.S., Louisville, Ky. Read at Falls City Dental Club, Jan. 16, 1897.

Much in years past has been said, and even at the present day controversies are frequently heard as to the advisability of contour filling, the preservation of the interdental space, etc. Like many other disputes in dentistry and in medicine, there is some virtue in the opinions and ideas of those who cling with great tenacity to their views on these subjects. But it remains for each to decide whether or not he will accept and endeavor to accomplish the modes and principles suggested and outlined for us by the advocates of contour filling, or will be satisfied with the feeling that anything is good enough so long as it stays in place and the patient suffers no pain.

If we are to accept our profession as one of science and art we should endeavor to uphold the principles suggested in these words. As to art, it seems that many of us fall short in this point of professional acquirement in a number of different ways, but none more to the disgrace of true art than in the lack of contour filling. The word contour means the outline, so if we are to do contour work we are to outline the original figure or shape of the particular tooth to be filled. Perfect approximation and many other minor details are questions to be decided on the moment.

It is the duty of our profession to supply natural means as much as possible; let us therefore decide that contour filling is to be performed—how to do it can be considered later. Perfect regularity and absolute uniformity in the teeth are not necessary to advance or beautify the expression of the face, for a slight irregularity will sometimes add to the attractiveness of the appearance; still as a general rule it is our duty to replace that portion which has been

lost through the ravages of decay. This may be accomplished with many of the filling materials at hand, but for permanency we must rely upon the amalgams and gold.

Having decided that a certain filling is necessary the question then arises—shall we prepare and fill the cavity half full of material, or fill it flat with its edges, or extend the filling until we have the original apposition and outline. This seems to be a simple question and one which ought to satisfy the mind of any inquirer as to the proper course of procedure. If we are to replace that which is lost by decay, why not do it completely and with an artistic eye? The old adage, "Things that are worth doing at all are worth doing well," applies here as well as elsewhere. In addition to the truth of this statement we are professionally and sincerely bound to do the very best for our patients, for they have intrusted themselves to our judgment and honesty, and if after cutting a third and nearly half of the tooth structure away we put in a filling which barely extends to the edges of the cavity, we have willfully robbed them of the service of half the tooth and also left a harbor for food which is bound by its own tendency to lodge in these openings and remain there. I often liken these openings to the old willow stripper—open at the top and the further down you carry materials the tighter they pack in.

These are some of the inconveniences to which patients are subjected, but we must yet consider one of the most important features of all, which of course is especially noticeable in the anterior teeth, and that is their unsightly appearance. No part of the human anatomy is more exposed to even a casual observer, and certainly no other portion adds more to the expression than does this one. There is harmony in nature and consequently there is harmony in variety, so we must employ an artistic judgment. It is necessary that we harmonize the outline of these anterior teeth and also that we consider the facial expression. The dentist who fails to consider the artistic part of his profession falls short of his calling. Nothing can mar the appearance so much, and so completely unbalance the entire expression of the face, as cutting several of the anterior teeth to less than half their natural size and then filling them without any regard to their original outline, reminding one of stopping the holes in a log house with mud. Even though the patients are compelled to submit to the loss of more time and greater pain, these things are

forgotten. They are willing to pay more for services rendered, since they and each of us should want the most satisfactory result.

As previously stated, I shall not consider the various different modes of preparing for these operations, nor the special detail features to be observed in accomplishing them, since they are of minor importance and naturally suggest themselves.

LIGHT ARTIFICIAL DENTURE.

By E. L. Lane, D.D.S., Portland, Ore.

On page 696 of the December, 1896, number of the Digest there is described a method of making light artificial dentures, to which I would suggest an improvement which I have been using for four years. If instead of using lead-foil, the operator will use for the first and last sheets of metal ordinary tin-foil, such as is used for filling, he will get a smoother surface without the bother of using the mercury, and in consequence will save that time. Also on the outside of the rim, if the case is nicely waxed up and a sheet of heavy tin-foil burnished on the wax before casing up, it saves a great deal of scraping after plate is taken from flask. Of course this piece of foil must be nicely burnished around each tooth, and then the case must be flasked high, so that the foil will come away in the same side with the teeth. Now if in addition to the above one uses, as in my practice, about four or five thin coats of aluminoid, giving plenty of time between the coats for each to get thoroughly rid of the chloroform, he gets the thinnest and handsomest plate I have ever seen made of rubber, and a very strong plate as well.

SOME PEOPLE'S IDEA OF DENTISTRY.

By Miss Elizabeth Harrison, Chicago.

We have lately settled ourselves in a temporary home among the foothills of the Sierra Madre mountains, and have made calls upon our neighbors living on the adjoining heights. In such expeditions we have met with some new and unique views of life and its necessities.

One day we climbed up to an abode perched high on the craggy edge of the 'arroya.' The door stood wide open, the usual custom in these Southern California ranch houses, and as we approached we were met by a tall, gaunt woman, clad in a calico gown, who came forward, pushing into place a set of false teeth. It was evidently a

somewhat difficult and unaccustomed job, so we waited on the threshold until the adjustment was made to her satisfaction.

Then taking a long breath she said, "Be you the new city folks?" We answered that we had taken a house for the season, and she continued, "I 'lowed as much when I seed you comin'. I aint fixed up, but I thought I would git in my teeth anyhow." We assured her that it was quite unnecessary, as we were harmless, but she went on, "Up in Arazony I didn't haf ter wear 'em, but down here folks fix up so that I allers put 'em in when I go to town or know I'm goin' to see city folks." This last with another vigorous push to the somewhat refractory plate, which seemed disinclined to remain in place.

By this time her husband had shambled up behind her and stood watching the operation. "Pshaw! Sara," said he with a tinge of irritability in his tone, "what's the use of puttin' yer teeth in, anyhow? 'Taint natteral; 'twasn't ever intended when folks lost their teeth ter have other ones put in." Then turning to us he continued, on evidently an old theme, "'Twouldn't be natteral to nail a stick on ter a tree when the limb drapped off, and 'taint natteral to be puttin' on false teeth when yer own drap out."

COLLEGES AND STUDENTS' OUTFITS.

By A. H. Butterfield, D.D.S., Stamford, N. Y.

In my opinion the colleges could do more for their students, and incidentally for a long-suffering public, if more attention were paid to the outfit selected by their students. A look through the operating-case of the average student will convince anyone of the need of thorough supervision in this important particular. I do not know how the matter is conducted in all colleges, but I know that in some colleges little or no attention is paid to this matter, and the instruments found in many students' outfits would draw tones of anguish from a saw. I would not advise anything so radical as to insist upon uniformity of instruments in students' hands, but suggestions offered by a skilled and careful operator would work wonders in imparting knowledge of the adaptability of certain instruments to certain operations, and with their proper use would come skill.

As some colleges are now conducted, the chance of a student's gaining proficiency in operating is very limited. They have cata-

logued in their yearly announcement a large staff of well-known operators; this leads the prospective student to imagine he is to be in good hands, but he finds that these men seldom or never are seen in the operating-room. The only practical instruction—if it may be called such—is by a few men who have recently graduated from the same school, with precisely the same source of instruction, and in cases within my own knowledge, men who could not do a fair piece of work themselves. In fact, in the majority of cases students ask and accept instruction from one another.

Skill cannot be attained by perusal of books, nor from the closest attention paid to the most brilliant lecturer. If the average student were given the opportunity of supervision by a competent man, who would offer suggestions, criticise and point out errors of judgment, he would be in a better way to successfully enter a remunerative practice upon graduating.

A dentist with a head full of theory, but no operative skill, is unable to do good work. He cannot save teeth nor retain the confidence of the public. On the other hand, a man with little knowledge of theory, but possessed of operative skill, can and does save teeth. Theory without the means of application never can and never will accomplish anything. Blessed indeed is the man who is possessed of a reasonable amount of both theory and operative skill.

I regard the lengthening of the student's time in college as a very wise measure, but I can see no virtue in the addition of time unless there be a radical change in the method of instruction as regards the opportunity to clinic.

I do not see the justice of taking a man's money and three or four years of his life, promising to teach him dentistry, and then simply to stuff him with theory and send him forth to prey upon the confidence of the public until he gains a certain amount of skill or, finding that he knows nothing of the technical branch of his profession, is starved into taking up some other means of gaining a livelihood. If a young man is to be put into the way of success in our profession, technical skill must be as firmly wedded to theory as capital is to labor.

To Remove Iodin Spots.—A solution of hyposulphite of sodium in water will remove iodin spots from linen, cloth, skin, in fact from everything, almost instantly. The fresher the spots the quicker the action of the hyposulphite.—*J. C. Emmering.*

Digests.

A FEW CONSIDERATIONS IN THE MANAGEMENT OF PROXIMAL CAVITIES IN MOLARS AND BICUSPIDS. By Dr. C. N. Johnson, Chicago. Read at Kansas State Dental Association, May 3, 1897. It may be laid down as a rule, subject only to the rarest exceptions, that when decay occurs on the proximal surface of a molar or bicuspid the proper preparation of the cavity involves an extension through to the occlusal surface, even when this wall has not already broken down. One of the principal exceptions relates to a mesial cavity facing an open space caused by loss of the proximating tooth. A small cavity of this class, having a strong occlusal wall, may be filled without such extension. Another case is where the gum recedes in old age and decay begins at the neck of the tooth, leaving the occlusal half of the surface intact. A cavity like this may often be approached from the buccal aspect. But in ordinary cavities, beginning near the contact point and with a tooth standing next in line, it is impracticable to attempt to gain sufficient access to do perfect work short of opening to the occlusal surface. Even if it were possible, after long continued wedging, to secure space enough to make a perfect filling, a fundamental objection to such a procedure lies in the fact that when the teeth drop together again after the operation, the line between filling and enamel comes in contact with the proximating tooth, thus inviting a recurrence of decay at that point.

Some of the most important considerations in the management of these proximal cavities may be enumerated as follows:

To check present decay. This consideration is probably met by most operators—at least by those who make an effort to do conscientious work. It merely involves the careful removal of all decay, the formation of sound margins, and the proper adaptation of filling material to prevent leakage. It would also seem to be apparent that so soon as this requirement is met, very many operators—among whom may be found the names of those accounted good—consider their whole duty done to the patient, and limit their efforts to this one accomplishment. In the light of the most advanced teaching on the subject, there are other important considerations which must be recognized to obtain the most permanent results in this line.

To provide as far as possible against recurrence of decay. Observant operators have learned in the past that there are certain points around an ordinary proximal filling where recurrence of decay is prone to take place. These points relate particularly to the buccal and lingual margins, and especially to the gingivo-buccal and gingivo-lingual angles, Fig. 1, *a a*. The reason for this is that where the cavity is left narrow, bucco-lingually, the line between the filling and the enamel is so far between the teeth that it is not readily kept clean, and the same influences are allowed to act on the enamel that induced decay in the first instance. Another source of failure in these narrow fillings may be traced to the fracture of the enamel at the proximo-occlusal angles, Fig. 1, *b b*. A cavity left narrow at the marginal ridge implies a corner of unsupported enamel on each side of the filling, and the force of mastication sooner or

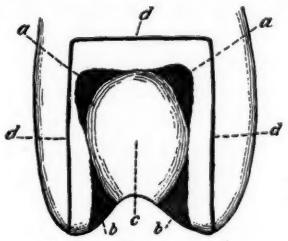

Fig. 1.

later results in fracture as illustrated. To avoid these forms of failure it is necessary to extend the cavity so that the line between filling and enamel shall be carried buccally and lingually to a point where it is readily kept clean, and where the enamel at the marginal ridge is well supported and strong. To this process Dr. G. V. Black has given the term "extension for prevention." Fig. 1, *c*, illustrates the form of original decay and the general outline of the cavity as left by many operators, while the line *d* shows the extent to which the cavity should be carried to insure the most permanent results.

Another point of failure relates to a certain form of mismanagement on the occlusal surface. It seems to be the practice with some operators to allow a cavity to terminate in a fissure, without drilling out the fissure to the end. A fissure is invariably a defect in the enamel whereby two plates of developing enamel have failed to coalesce, leaving a leak for the ingress of deleterious matter. To

allow such a fissure to extend from a filling is to invite recurrence of decay at that point. It may be laid down, as a cardinal rule never to be varied, that wherever a cavity leads into a fissure on the occlusal surface it should be drilled out to the extreme end of all its ramifications. Another reason is that the margin of a filling cannot be finished perfectly when it comes against a sharp depression like a fissure.

To securely anchor the filling against dislodgment. When the severity of the force of mastication is considered, and it is remembered that the constant application of this force in the comminution of food is brought to bear upon a filling, the importance of secure anchorage must be recognized. In addition to the ordinary stress of mastication, the filling is occasionally subject to exceptional stress from having hard substances caught between the upper and lower teeth, such as bits of bone in meat, shot in wild game, small pebbles in vegetables, and seeds in fruit. The leverage upon a filling, when the full force of mastication is thus concentrated on so small a compass, is enormous, reaching in some instances to nearly 300 pounds.

Various plans of anchorage have been employed by different operators. Retaining pits drilled at stated points in the cavity walls have been used extensively in the past, but have been found inadequate to hold a filling in place permanently. The strength of the filling material across the entrance to the pits is so slight that breakage invariably occurs at this point, leaving the pits filled and the main body of the filling loosened. The failure of pits led most operators to begin grooving the buccal and lingual walls for retention, and very many at the present time continue to rely upon this method for anchoring their fillings. While fillings of this kind have sometimes stood the test for years, and while occasional instances occur where on account of the exigencies of the case recourse must be had to this method of anchorage, it is yet confidently believed that for general use there is a better means at hand, and one which, in addition to giving greater security to the filling, simplifies the insertion of the filling material.

The limitations of the grooving method relate to the weakening of the walls of the cavity, resulting in fracture of the enamel margins, and to the inadequate retention of the filling under great stress of mastication. Where buccal and lingual grooves are relied on

entirely for anchorage, any compressibility of the filling material in the grooves under repeated thrusts of the opposing tooth allows a slight shifting of the filling away from the cavity and admits a leak along the axial wall. This sooner or later results in failure.

The most approved method of anchoring these fillings relates to giving the seat upon which the filling rests a flat base, so that the filling is not easily shifted, and to extending the cavity into an anchorage step on the occlusal surface to provide against dislodgment from the tipping stress in mastication. To prepare a cavity in this way the gingival wall should be made broad and flat, the accomplishment of which bucco-lingually is attained in the process of extension for prevention, line *d*, Fig. 1. The shape of the gingival wall mesio-distally will be considered later.

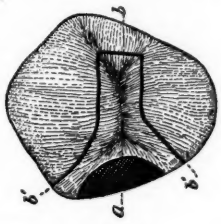

Fig. 2.

The formation of an anchorage step on the occlusal surface is one of the most important factors in the retention of these fillings. Fig. 2 illustrates the degree of extension for this purpose on a bicuspid; *a* original decay, *b* line of extension; which, as will be seen, also involves the drilling out of the fissure between the buccal and lingual cusps as previously advocated. With this form of anchorage intelligently carried out, a filling cannot be forced from the cavity by any degree of stress short of that necessary to break the filling.

To guard against fracture of the cavity walls surrounding the filling from too great leverage in mastication. This relates to the cutting away of all walls rendered weak by decay, or to so protecting them in those exceptional cases where it seems necessary to leave them, that the stress will fall on the filling material instead of on the enamel. There are cases where extensive decay has occurred in which a moderately thin wall must be left, but in all such

instances the wall should be beveled well away, and the filling material built over it in such bulk that it is protected from stress.

The question of leverage on these proximal fillings also relates to the form given the filling on the occlusal surface. Wherever the attempt is made to build the filling out at the proximo-occlusal angle so as to reproduce the marginal ridge, it is found that the broad, flat, table-like masticating area admits of too great leverage from the opposing cusp and subjects the filling and walls to an unreasonable degree of stress. To guard against danger from this source, the filling should be sloped from the contact point on the proximal surface towards the occlusal anchorage in such a manner as to present an incline from the highest point between the cusps down to the immediate contact with the proximating tooth. When pressure in mastication is brought to bear on a filling formed in this way, the force exerted is more nearly in a direction central to the tooth, tending to drive the filling into the cavity against the axial wall instead of tipping it away, as is the tendency when the marginal ridge is reproduced.

Another important consideration in protecting the filling and walls against too great stress relates to the treatment of the occluding tooth. Close attention should be given to the manner of occlusion of the opposing cusp. If this cusp is too sharp, or if it extends, on closure of the jaws, so far between the cusps of the filled tooth that it necessitates making the filling too thin for strength, or presents an element of danger in the tendency to split the tooth, the occluding cusp of this opposing tooth should be ground down and rounded off. The permanency of the operation and the future safety of the filled tooth will be much enhanced by this procedure, while the occluding tooth, on account of the thick enamel at this point, will not be injured, if the grinding is done with judgment.

To preserve the form of the interproximal space so that the gum septum may fill it in a healthy condition. This feature in the management of proximal cavities carries with it one of the most important considerations connected with the subject. It is a point which is probably more often ignored by the average operator than any of those already mentioned, and the failure to recognize the simplest principles underlying its proper observance leads to more disastrous results and more continued discomfort to the patient than is easily imagined by those who have not given the matter careful

study. A detailed description of the anatomy and function of the interproximal space is not permissible at this time, but a brief reference to some of the most salient points seems necessary to a proper emphasis of its importance. The interproximal space is the V-shaped opening between the teeth, having its base at the border of the alveolar process and its apex at the contact point on the proximal surfaces of the teeth. In the living subject, where the conditions are normal, this space is filled with gum tissue, which prevents in large measure the lodgment of deleterious agents between the teeth. When decay takes place and the contact point melts down, the teeth fall together, thus narrowing, and in some instances almost entirely obliterating the space. This results in a crushing out of the gum tissue and the formation of an unhealthy pocket between the gum festoons, in which particles of food find lodgment and decompose, producing discomfort to the patient and grave complications to the peridental membrane, besides accelerating the process of decay. In the management of proximal cavities, wherever the teeth have dropped together, they should be separated to their original position and then the filling so built to a contact point that they will be maintained there. From this contact point the filling should be sloped to the gingival margin of the cavity so as to reproduce the original form of the interproximal space. As much attention should be given to the proper form of the contact point and the outline of the space as to any other feature of the operation, and when this is done perfectly the gum tissue will creep up into the space and occupy it in as healthy a condition as it did before decay had taken place.

The principal faults of management as observed among many operators are manifest in a failure to gain sufficient space to properly build out the filling to form, and to an imperfect recognition of what that form should be. The contact point must be small and rounded, not broad and flat. A broad contact point entails the danger of having particles of food caught between the proximal surfaces of the teeth and held there indefinitely. This soon destroys the gum septum in the interproximal space and creates an unhealthy pocket. Fillings made flat on these surfaces are not only a source of discomfort to the patient but a menace to the permanency of the operation.

Details of Cavity Formation.—The gingival wall. As already indicated in Fig. 1, the margin of this wall should be changed from

the gingival with the axial wall should be nearly a right angle, to insure a flat base for the filling to rest upon, and in the insertion of the filling material it should be solidly condensed into this angle. A filling thus seated will stand great stress without movement. As the angle between the gingival and axial walls approaches the buccal or lingual wall it may be carried slightly into these walls, or what might be called a shallow right-angled groove may be made at these corners for facility in starting the filling and retaining it firmly in position while being built up. Fig. 3 illustrates the usual form of decay at the gingival wall, *a*, with a line, *b*, indicating the proper form to be given it in preparation.

The buccal and lingual walls. Probably a greater diversity of opinion exists as to the proper form to be given these walls than any other feature of this class of cavity preparation. As has been stated, very many operators groove them extensively and rely on this for the retention of the filling. The limitations of this method have already been pointed out. Other operators pass to what might seem the opposite extreme, and slope them from the enamel margin obliquely toward the center of the tooth till they meet the axial wall, leaving the cavity much narrower at this wall than at the enamel margins. They thus depend for the retention of the filling entirely upon the flat seat at the gingival wall and the occlusal anchorage before referred to, ignoring altogether any possible retention between the buccal and lingual walls. Under these conditions, if there is any break in the filling at the occlusal anchorage, or any stretching of the material from repeated thrusts of the opposing cusp, the proximal portion of the filling is lifted away from the axial wall and a perceptible fissure made along the occlusal half of the buccal and lingual margins. This admits a leak, which results in a failure of the filling.

What might seem preferable to either of these methods is a modification of both. Deep grooving cannot be condemned too strongly, but the axial wall may be so widened bucco-lingually as to make the buccal and lingual walls parallel, or even present a slight divergence as they approach the axial wall. When the filling material is condensed between these walls it is mortised or dovetailed in place, and the security of the filling is thereby greatly enhanced without materially weakening the buccal and lingual walls. The

a curved line to a horizontal base. It will also be noted that there is some extension of the cavity rootwise of the original decay. This is done so that the gingival portion of the filling may be carried well under the free margin of the gum. If there is perfect adaptation between the filling and the tooth along this wall, and the cavity is extended so far rootwise that when the gum fills the interproximal space after the operation this margin is thereby covered with healthy gum tissue, there will never be a recurrence of decay at that point. Another reason for such extension relates to the manner of decay at the gingival wall. Usually the decay dips into the structure of the tooth, involving a deeper penetration rootwise into the dentin than at the enamel margin. This results in a groove along the gingival wall, with a ridge of enamel standing more or less sharp and ragged at the cavity margin. It is the habit of some operators to reproduce

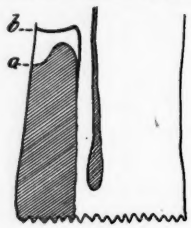

Fig. 3.

this form in the preparation of the cavity, but such a procedure is faulty from the fact that if the enamel is higher than the dentin at this point there is grave danger of fracturing it in the insertion of the filling. Enamel unsupported by dentin in a position such as this, where great stress is brought to bear against it from impact upon the filling, is insecure and unreliable. This enamel should be cut away on a level with the deepest portion of decay, and then the entire gingival wall extended into sound, uninfected tissue.

The form of this wall mesio-distally should be such that instead of being grooved, as often advocated, it should be nearly flat, with a slight incline rootwise from the point where the enamel is beveled to the juncture with the axial wall. The bevel of the enamel along this wall need ordinarily not be so great as along the buccal and lingual walls, on account of the absence of lateral violence against this margin after the filling is inserted, and the difficulty of making a perfect filling over a decided bevel at the gingival margin. The juncture of

The treatment of enamel margins. In the development of a tooth the enamel rods are so arranged that they stand with their ends on the dentin and radiate out in a more or less parallel manner to the periphery. With this continuous array of rods covering the entire crown and supported by dentin, the enamel is capable of offering great resistance to stress. It is well-nigh impossible to fracture a piece of enamel crosswise of the rods, but when by any

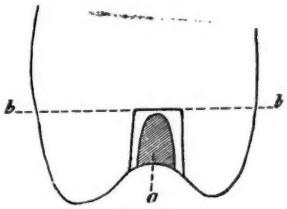

Fig. 7.

chance, such, for instance, as decay of the tooth, the rods are left unsupported by dentin, the enamel is easily fractured. This fracture is always parallel with the length of the rods, proving that the cement substance which joins the rods together is not very strong. More especially will the rods easily fall apart and drop away if the inner surface of the enamel is undermined by decay. A thin edge of enamel with nothing but the outer ends of the rods standing is

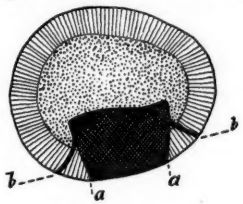

Fig. 8.

exceedingly unstable. This shows the fallacy of leaving thin edges of enamel around a filling. Even if it were possible to properly adapt the filling material to such a margin without pulverizing it, the short ends of the rods would soon fall out, causing a leak about the filling. To gain the greatest security to a cavity margin the enamel should be so beveled that the outer ends of the rods are cut off and the filling material allowed to overlap the inner ends of the rods. This bevel should be greater along those margins of the cav-

stress to which these fillings are sometimes subjected would seem to make it the logic of caution for the operator to avail himself of every means at hand to add to the security of his work, and when the anchorage can be strengthened without weakening the tooth it should be done. Figs. 4, 5 and 6 represent cross-sections of a bicuspid, illustrating the different plans of shaping these walls.

The occlusal anchorage step. This should be sufficiently large to receive a bulk of filling material that will represent considerable strength. It must not, however, be deepened too far rootwise between the cusps of a bicuspid, for fear of weakening the tooth and rendering it liable to split. It may safely be carried in this direction to the bottom of the fissure, there being no element of strength between two plates of enamel where a fissure separates them. If it is found that the distance between the cusp of the occluding tooth

Fig. 4.

Fig. 5.

Fig. 6.

and the bottom of the fissure is not great enough when the jaws are closed to admit of sufficient bulk of filling, it is advisable to shorten the occluding cusp, as already advocated. This will result in a stronger filling and also lessen the danger of splitting the filled tooth. The width of the step bucco-lingually should be governed somewhat by the manner in which the triangular ridges of enamel from the buccal and lingual cusps approach each other, but should be great enough to insure strength of filling material, especially at the point where the axial wall joins the step. As the step extends across the tooth from the proximal cavity, it should end in an abrupt wall.

One of the most important considerations in making the step is the form of the seat. As ordinarily made it is more or less rounded, which has an element of insecurity in the possible shifting of the filling under stress. In all cases the seat should be made flat, thus presenting a solid base upon which the filling may securely rest. Fig. 7 illustrates the ordinary form, *a*, with the line, *b*, showing the proper form.

ity where violence is likely to occur, but it should never be so great that the overlapping filling material is carried out to too thin an edge. Neither must the enamel margin be rounded on its outer aspect. Either of these conditions results in a weakening of the filling material on account of too great attenuation at the margin. Fig. 8 illustrates the form to be given these margins, *a* imperfect form, *b* proper level.

General Considerations. Judging from observation, it would seem that the majority of the profession hold views in regard to the preparation of proximal cavities in molars and bicuspids which would make them insist that the plans here advocated were altogether too radical. We see statements and hear remarks about the "shameful sacrifice of sound tooth structure." The progress of events does not seem to be at all shameful when it subsequently sacrifices this same sound tooth structure around a filling by recurrence of decay. That recurrence will take place along the margins of fillings on the proximal surfaces when they are left narrow bucco-lingually cannot admit of doubt. It is seen too often in everyday practice, and observant men are no longer shutting their eyes to it. It does not always take place. Narrow, shallow fillings have stood for years, and are often pointed out as an argument in their own behalf. But if it were possible to sum up the percentage of failures in this class of work and place them against the few successes, the evidence would be overwhelmingly against narrow fillings.

No man can doubt that a judicious extension of the cavity will result in greater permanency to the operation. The only possible question can be as to whether or not we are justified in resorting to these radical measures in all cases, when there is probably a case now and then where it is not necessary. The tendency to decay in some mouths is so slight that almost any kind of fillings will save the teeth. Then in the same individual at different times there is a wide variation in the liability to decay. The case may run along for years with little recurrence of decay around fillings that were inserted in violation of nearly all the principles laid down in the most advanced teaching of the day. But a time of reckoning usually arrives. Suddenly—in some instances almost as sudden as the breaking out of an epidemic—a crop of cavities springs up. Walls melt down around fillings that have stood intact for years, and general havoc lets loose in the mouth. It is now that the supreme test

has come, and we are able to judge as to the merits of the different methods. Small, narrow fillings topple and fall, medium fillings tremble in the balance, while broad fillings built on a firm foundation are the only ones that seem to have any assurance of safety. In some instances these also go, but in the majority of cases their permanency in the midst of the general destruction is really surprising, even to the man who inserted them. It is at such times as these that all doubt is removed in the mind of an observant operator as to which method is the most advisable. After a few lessons of this kind he does not feel like taking chances. No man can predict when he sees a mouth whether caries is likely to progress rapidly or not. If predictions of this kind could be made, it would give some license for less radical methods than here advocated. Long clinical experience may enable a man to guess more or less shrewdly after he has had a few years' observation of a mouth as to the probable tendency to decay, but no man may be sufficiently certain of his predictions to admit of indifferent work in those difficult positions on the teeth where decay is most disastrous, such as the proximal surfaces. That many men go on day after day inserting fillings in all conceivable positions in such a manner that failure is certain to occur reflects seriously on the profession as a whole. The more permanent we make our work the greater will be the confidence reposed in us by the people, and the larger our measure of accomplishment for humanity.

In this view of the case, we need no further indorsement of such methods as will insure—from the very nature of their mechanical philosophy—the greatest permanency to our work; and no further arraignment of many of the methods in vogue, whose ultimate result has all too often been manifest in the wrecks which have disfigured the pathway of dental effort.—*Western Dental Journal, May, 1897.*

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CONSTITUTIONAL TREATMENT AS AN AGENT IN DEVELOPING PERFECT TEETH. By J. M. Dunn, D.D.S., Oakland, Cal. Read at Oakland Dental Club, April 8, 1897. The subject I present has particularly occupied my attention from the fact of some splendid results which I have obtained from constitutional treatment. During my practice of eleven years I have been frequently discouraged by vain attempts to arrest caries in very young permanent teeth. But few of us are called on to attend the

little ones until they have lost their temporary teeth, and at times we are appalled at the destruction of the permanent teeth we meet with which have scarcely erupted. Can it be possible that there is no remedy to arrest the attack of disease on and destruction of these organs? And why is it not just as feasible to develop and make strong the teeth as well as the other organs and muscles? Strictly preventive treatment in arresting decay must, of course, be governed by circumstances. Many times our best efforts will be frustrated by the patient's neglect to carry out instructions, and the disappointment incurred tempts the enthusiastic and conscientious practitioner to cease his scientific endeavors and let things take their own course, after patching the teeth up as best he can. But having met with astonishing success in seemingly hopeless cases I have the courage to continue my efforts. I had notable success in a recent case of a girl of 6 years old, who came to me with the temporary teeth almost entirely gone, and with the molars about to erupt. I prescribed the use of lactophosphate of lime, a teaspoonful twice daily. After patient had consumed a ten-ounce bottle I would stop giving it from two to six weeks, and then resume. In this case all the teeth have erupted in excellent condition.

Again, how few of our patrons do we find whom we can impress with the understanding that systemic treatment is the proper thing. They consider that such treatment should be prescribed only by the physician, and that the dentist is "presuming a great deal" (as a physician expressed it) to suggest it, and therefore, for this prejudice our patrons are not entirely to blame, since this has been their teaching. It is to a great extent the dentist's fault in not educating the public—and the physician, also—to understand the proper care and development of the teeth. How many physicians understand the development of the teeth, and how these organs are maintained and nourished after development? How often do we see, day after day, the evils that follow from the ignorance of the physician on the subject of teeth. Not long since I met a physician suffering from Riggs' disease, who said he could not understand why the dental profession did not exert itself to discover a remedy!

We all concede that the first molar holds a very important position, erupting, as it does, nearly a year before the temporary teeth are shed. It has many duties to perform: to keep correct the occlusion of the jaws, do the masticating till the temporary set are

shed and replaced by the permanent ones, and to keep the face in shape. When a case is presented to us with the first molar mostly gone, is it not supposable that those following may take the same course unless some preventive treatment is followed out? Is it not our duty to prescribe when we see unmistakable signs of the lack of inorganic matter in the teeth? From the 6th to the 17th year the growth of the body is very rapid, and as the bone of the body has the most exercise it absorbs most of the bone-making element from the food, and leaves the teeth in poverty row because of the lack of building material. The teeth also should have exercise, such as biting on tough substances, coarse food, etc.

As a developing agent I have used the syrup of lactophosphate of lime more than anything else; also hypophosphites in milk, or the lime salts combined with other agents, as circumstances require.—*Pacific Stomatological Gazette, May, 1897.*

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DENTAL DECAY AS OBSERVED IN WILD ANIMALS WHILST IN CAPTIVITY. Reported by George Randorf, Berlin, Germany. Drs. Charpentier and P. Stivenim presented an interesting paper before the National Dental Congress of Nancy. It is well known that the animals are not exempt from decay of the teeth, and Dr. Francis Jean has already reported a case of dental decay of the tusk of an elephant. It would be of great interest to know to what degree this decay exists among wild animals, and they have arrived at the conclusion that captivity tends to increase this decay. Although its appearance is rare among them, we should imagine it would be still rarer among those at liberty. In the Natural History Museum at Paris skulls of all animals are preserved, and they examined therein the jawbones of three thousand specimens. They found as a result of their examination, especially of caries, many anomalies of size, form, extent and number. As animals are never attacked with syphilis they knew that the eroded teeth were not the result of this disease.—*Items of Interest, May, 1897.*

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ART IN DENTISTRY AND ART IN THE NEWSPAPER.—By Mr. Walter Macdougall, at Central Dental Association of Northern New Jersey. The subject of the toast, although Dr. Meeker has intimated that I need not pay any attention to it, seems to be the relation between art in dentistry and art in the newspaper. I suppose

he thought they were related because one deals with drawing teeth and the other with drawing pictures, both of which are generally bad when they are drawn. The resemblance between the two arts may be found in the fact that both the artist and the dentist, when he has a job, generally sits down and makes out the bill first. Another way wherein the artist's profession and the dental profession resemble one another is that while medical mistakes are buried six feet underground, and your lawyers' mistakes are sent to state prison, the errors of dentists and artists are paraded in broad daylight, and even children can tell you whether the work is correct or not. Another connection is found in the fact that the very oldest sample of drawing in all the world is a very masterly piece of drawing on a mammoth's tooth found in a cave in France, a drawing made long before our age. Another very ancient sample of man's workmanship is one of the oldest writings extant, hieroglyphic writings, which in most minute terms describes a method of drawing teeth. Now these facts, well authenticated, are not only notable facts of history, placing the two professions in the very foremost rank of human endeavor, but they answer at once the carping criticisms and queries as to why artists and dentists roll in luxury while other men work for a living. In the line of honorable toil nothing is more ancient than the profession of dentistry or than the profession of the artist, and that is why the dentists live on the fat of the land, roll in luxury and smoke dollar cigars. But the artist has the advantage of the dentist in one respect. All the artist needs is a sheet of paper, a pencil, some ink and a little quiet, and he can sit down and become wealthy and famous, but the dentist must have capital. He has to buy gold, or what he sells for gold, and a lot of other expensive things, before he can do anything, or anybody. He must have brains, of course, but if he can't advertise they are of no use to him. Gentlemen, I can address you only with the greatest feeling. I have owed Dr. Meeker $5 for two years, and I cannot speak before so many dentists without much emotion. Therefore I must close, thanking you for your good dinner, which is an epoch in the life of an artist.—*Items of Interest, May, 1897.*

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PYROZON AND PEROXID OF HYDROGEN. By W. H. Jackson, D.D.S., Ann Arbor, Mich. After using these substances, immediately before the permanent stopping of pulp-canals, I was at

a loss to account for the frequent disturbances that followed, and found upon investigation that, although thorough precautions to dry the canals had been made, there would still be gas formed hours after their use had been discontinued. This is not written to condemn the use of these agents, for they are very valuable and I would not like to be without either of them, but would not advise the use of either agent within a short time of final stopping of the pulp-canal, for fear of disturbance following, except when there is a free opening through the gums.—*Ohio Dental Journal, May, 1897.*

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ENCYSTED BULLET IN THE ANTRUM. By Harry D. Watson, '97, University of Michigan. When 18 years of age, a gentleman accidentally received a bullet from a 32-caliber revolver, at a distance of less than two feet. The ball struck the superior maxilla on the right side, at the upper termination of the cuspid eminence. The first bicuspid was shattered by the ball, while the cuspid was completely removed. Less than an hour after the wound was probed and it was found that the bullet had pierced the wall of the antrum, but the physicians could not locate it, nor could they find any evidence of its penetrating the posterior wall of the antrum. This left no doubt that the bullet was in the antrum, but they failed to find it there. The wound was treated antiseptically and a drainage tube inserted. In three months it had entirely healed and remained so for five months, when it began to swell and become painful. It was then lanced and quite a quantity of pus removed, after which it quickly healed, and for the past four years has not given him the slightest inconvenience. The physicians were of the opinion that the ball would become encysted by a growth from the lining membrane of the antrum and give no trouble. This is undoubtedly what happened.—*The Dental Journal, May, 1897.*

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APICAL AMPUTATION OF ROOTS. By E. B. Lodge, D.D.S , Cleveland, O. Believing that the operation of amputating the apex of the root is a procedure of the utmost value in a certain well selected class of cases, the writer has chosen to deal with this subject. There are several distinct conditions where we would think this operation the best, if not the only satisfactory treatment. (1) In chronic alveolar abscess where, owing to sanguinary calculus at the apex of the root, the ordinary treatment is ineffective. (2) In

cases where the root-canal has been filled, entombing septic matter at the apex in sufficient quantity to cause a condition of chronic irritation at the apical space, or in cases where irritation comes from a mechanical cause, as for example, a broken nerve-broach protruding through the apical foramen. (3) In event of exostosis at the end of the root. (4) In cases where the presence of the pulp nodules will not permit the action of arsenious acid.

Having decided that the operation is indicated in a certain case, and having produced local anesthesia by some method reliable in the operator's hands, remove the overlying gum tissue sufficiently to expose the process at the point where it is to be operated on. There are three methods of doing this: (1) By the use of an escharotic, as 95 per cent carbolic acid, applying it at the proper point and carefully scraping away the coagulated tissue, then reapplying the agent and again scraping until the process is exposed; or, (2) by using a tubular lancet in the engine, cutting a circular incision, the tissue lying within being then dissected away, bringing the alveolar process to view; or, (3) by the use of the three line or Y-incision, the flaps being turned back. This method the writer ordinarily prefers.

Now, having the process exposed over the apex of the root, select a Younger trephine of suitable size for the case in hand, and with the engine pass it carefully through the external plate of bone and then on through the apex of the root. The included tissue will perhaps come away with the instrument, but if it does not, it can easily be removed with some form of excavator. If it is desired, from the nature of the diseased condition, to remove more than simply the apical portion, then instead of placing the trephine over the apex of the root, place it nearer the crown of the tooth and pass it through the root. After thus removing a section of the root, the apex may be dislodged by the use of a suitable instrument. All that is now left to be done is to take a fissure bur of the proper size and remove any remaining spicule of root or bone and also any necrosed tissue that may not have been included within the trephine. Then syringe out the cavity with tepid water, containing some good antiseptic, as phenol-sodique. This will remove any remaining fragments of tooth or bone and render the cavity aseptic.

If the root has not been filled, now is the time for that operation. The filling material may be forced through the root and the excess

removed, and the end of the root left smooth. The wound should now be filled with a tent of cotton saturated in phenol-sodique or other antiseptic and the operation is completed. The dressing should be renewed the following day and for a few succeeding days, until it has become sufficiently filled with granulations to make it no longer needful. The wound usually heals kindly and in a short time, leaving the tooth in good condition.

The operation is not difficult to perform and the writer has employed it successfully, even upon the molar teeth. Strict asepsis should, of course, at all times be observed. The writer regards apical amputation as an excellent measure to resort to where other means of saving the tooth offer little hope, and he is confident that no one is better prepared to do this than the well-equipped dental surgeon.—*Ohio Dental Journal, May, 1897.*

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HOW THE BACTERIAL ORGANISMS ARE STUDIED. By J. E. Lamb, M.D., Wahoo, Neb. The technique of investigating these microscopic plants is manifold. Microscopy alone is inadequate. Identification requires other tests than those afforded by the microscope. These tests are: (1) Staining agents. (2) Appearance of cultures. (3) Reaction to heat and oxygen. (4) Pathogeny.

1. *Staining agents.*—Watery solution of the anilin dyes penetrates the protoplasm in the cell bodies of most bacteria, yet the tubercle bacillus long eluded observation because it absorbs the solution only when the water is reinforced by some other agent like carbolic acid or alcohol. This microbe is stained with great difficulty, but once stained, it is very resistant to decolorizing agents. Upon these facts all staining solutions and methods of staining are founded. Some operate slowly, others more rapidly.

In order to appreciate and differentiate the tubercle bacillus, the following solutions and methods of use are more easy and simple to manipulate than any others with which the writer is acquainted. It is hoped they may prove as acceptable as those you are now using:—I. Fuchsin pulv., 15 grains; Alcohol, 2 drams; Aquæ distillat, 1 ounce. II. Aquæ distillat, 1 ounce; Liquor ammonia, 3 minims. III. Alcohol, 1½ ounces; Aquæ distillat, 6 drams; Nitric acid, ½ dram. Anilin green, to saturation.

To stain: 1. Gently press a small part of the most solid portion of the suspected sputum between two cover-glasses. 2. During

five minutes place one cover-glass in equal portions of solutions one and two, heated till vapor rises. 3. Rinse in water, put a drop of solution three on it, rinse again. If the mount is not a distinct green, put on another drop of solution three, wash again, dry and examine.

The use of the following will also afford gratifying results: Ziehl's Solution.—Fuchsin pulv., 1 part; Alcohol, 10 parts; Acid carbolic, 5 per cent sol., 100 parts. Gabbet's Solution.—Methylin blue, 2 parts; Acid sulphuric, 25 per cent sol., 100 parts. 1. Prepare mount as above, hold high over a flame until dry. 2. Place cover-glass in Ziehl's solution five minutes. 3. Place cover-glass in Gabbet's solution one minute. 4. Dry, examine with oil immersion.

If a hurried diagnosis is unimportant, but permanent mounts desired: 1. Place cover-glass, with dried sputum, in Ziehl's solution twelve hours. 2. Hold in nitric acid, 25 per cent solution, till brownish black. 3. Hold in alcohol five seconds. 4. Hold in water one second. 5. Dip once in two, three, and four, if color is deeper than light pink. 6. Cover mount with Gabbet's solution two minutes. 7. Dry and examine as above.

A one-eighth or one-sixth objective, in other words, the enlargement of 400 diameters, with or without eye-piece multiplications, produces a clear field sufficient for diagnostic purposes.

Alcohol mixed with fresh sputum in order to preserve it coagulates the albumen, which should be softened with a two per cent solution of caustic potash before spreading over a cover-glass. A saturated solution of borax preserves the sputum, liquifies the mucus and does not coagulate the albumen.

Most cocci take Gram's staining readily. The gonococcus, however, being an exception, will not take Gram's method, this being one of its main diagnostic features. It takes all the ordinary anilin stains. Gram's Solution.—Iodin, 1 part; Potassi Iodidi, 2 parts; Aquæ distillat, 100 parts. The potash is not indispensable but added to facilitate solution.

2. *The color of colonies.*—If the individual bacteria in any given species be grown on a suitable soil, such as gelatin, bouillon or potato, there results a mass or colony of these minute plants whose size, shape and color afford essential means of differentiating the organisms, and the bacteriologist uses them for recognizing his minute plants just as the chemist uses the behavior of a given sub-

stance to identify his still more minute molecules. The streptococcus grows into light gray colonies, while the staphylococcus produces bright yellow. It is only when growing in masses that enough color is formed to be visible. Not infrequently are these colored masses so luminous that they can be photographed by their own light when placed in a dark room. Indeed, the color of our mischievous microbe played a conspicuous part in many of those natural phenomena which, by their lack of apparent cause, were in early times relegated to the domain of the supernatural. That wavering, cold, uncanny, phosphorescent light, seen at night time in putrid plants or by the seaside, is our innocuous microbe. The consecrated wafer placed in the bacteria-laden air of the church edifice over night was found besprinkled with crimson drops in the morning. The legends are long and tragic of the dire calamities, unmentionable crimes and swift retributions which the strange appearance of our chromogenic microbe was supposed to foreshadow. A recourse to the supernatural to elucidate all these natural phenomena is no longer necessary, for to-day we cultivate and study the tiny bacillus prodigiosus which made the drops of blood, the mingled green and blue phosphorescence.

3. *Heat* and *Oxygen.*—Like the larger plants, different species of bacteria require different temperatures for their growth. Most all grow well at 60° to 80° F., but the tubercle bacillus ceases to grow below 92° F.

As microbes assume very diverse forms in accordance with the nature of their environments, so also their habitat and mode of life divide them into very distinct classes. The aerobines can subsist only when they breath the natural oxygen they withdraw from the atmosphere. The anaerobines live within fluids and living organisms, and derive the oxygen necessary for their respiration from the oxygenated substances in which they are found. To the latter class belong all microbes which provoke pathological changes when introduced into the blood.

4. *Pathogenesis.*—Living animal tissues afford unfavorable soil for bacterial growth. When introduced into animals a large majority produce no appreciable effect. It is now known, however, that upwards of thirty species are capable of nourishing themselves in animal tissues. No species is pathogenic in all animals, but each only in certain kinds. The anthrax bacillus grows well in sheep,

but refuses to grow when planted in dogs or cats. Hence the behavior of a given species when inoculated into different animals is another means of differentiation.—*St. Louis Medical Review.*

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DIFFICULT PARTIAL IMPRESSIONS. By Homer Heberling, D.D.S., Lehighton, Penn. Several weeks ago a lady presented desiring a partial upper denture. An examination of the oral cavity revealed a V-shaped arch with several sound teeth, posteriorly and anteriorly. Wherever possible I prefer taking plaster impressions in partial cases; I therefore proceeded in the usual manner to get a plaster impression. The teeth were at unfavorable angles, seriously interfering with the work. After several unsuccessful attempts and spending considerable time in trying to patch together broken pieces which were more intricate than a Chinese puzzle, I hit upon the following method: That portion of the plaster which came out intact, viz., the palatal surface, festooning teeth lingually, and partially covering the ridge where teeth were absent, I replaced carefully in the impression-tray, flowing *very* soft plaster where the first impression had been imperfect. I next pressed the tray and plaster quickly into the arch, retaining it in position until the new plaster had set in. The cup was then easily removed, the new plaster fractured cleanly and in large pieces, some, however, remaining cemented to the original impression, making it a simple task to reunite the whole. The result was a perfect model of all the teeth, ridge, palatal surface and condyles, from which I made a well-fitting plate.—*Items of Interest, March, 1897.*

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NEW METHODS IN PROSTHETIC DENTISTRY. By Dr. T. C. West, Natchez, Miss. Read at Miss. Dental Ass'n, April, 1897. In the construction of a vulcanite denture a more life-like appearance is obtained, and greater accuracy and greater strength secured, than by the old method of procedure, by the adoption of the following innovations: (1) After securing an accurate plaster cast, coat it with rubber-cement. Into the cement press closely onto the cast, with thumbs and fingers, black vulcanizable rubber, which will adhere to the cast. If there are any depressions on the alveolar ridge the black rubber should be thickened at those points to even up the surface. (2) The next step is to vulcanize this—but only out three-fourths the usual time of vulcanizing a rubber plate

This forms what may be called *a base plate*, which is to be tried in the mouth and trimmed to accommodate the muscles. It will be found that this will fit the mouth better than the ordinary vulcanite plate, because it has been pressed closely on to the cast with the thumbs and fingers, escaping the screw-pressure in closing the flask after packing, which is so apt to distort or obliterate the finer features of the cast. The rugæ are also nicely represented, the rubber over that portion being of uniform thickness. (3) This vulcanized piece is now used as a base-plate in "taking the bite," which place in the articulator and carefully fill the palatal portion of the vulcanized base-plate with plaster. (4) The bite-wax is removed when the plaster has hardened and the surface of the base-plate washed with chloroform, benzine or gasoline, the alveolar ridge portion coated with amber cement and covered with a sheet of red rubber—not extending it over the palate. (5) The teeth are now warmed and pressed into the red rubber. It will be found that the rubber will bulge over the necks of the teeth, forming a very natural festoon, without any spatulating. (Teeth with a slight groove at the neck, such as are made for celluloid work, are the best for use in this method.) (6) The next step is to place a strip of wax to cover the pins of the teeth, being careful not to melt it. In this condition the piece is tried in the mouth, and any desired changes in the position of the teeth made by removing the tooth, warming it, and resetting as desired, while the piece is in the mouth. (7) Now a piece of modeling composition is used to fill the vault and form a support for the lingual faces of the teeth. (8) When this is hard the teeth are removed and a *thin* sheet of pink vulcanizable rubber is warmed and placed over the labial and buccal surfaces, extending over and into the depressions from which the teeth were removed, each tooth being then warmed and returned to place, the sockets in the modeling composition showing the exact position of each tooth. (9) Now coat the surface of the pink rubber with light tin-foil—it is not necessary to use heavy foil, as no screw pressure is to be used in this process. (10) Next put the piece on the cast which was poured into the vulcanized base-plate (see 3) and place it in the shallow portion of the flask, building the plaster up so as to support the buccal and labial faces of the teeth. (11) The modeling composition is now removed, as also the wax from the pins of the teeth, and for this purpose it may be necessary to use

hot water. (12) Coat the teeth about the pins with amber cement and put in red rubber, cut in small pieces, so as to anchor the teeth; coat with a layer of tin-foil, and—without either soaping or varnishing the plaster—fill the upper portion of the flask, put in the bolts and vulcanize in the usual way, *regardless* of the partial vulcanization of the black rubber base-plate.

When the piece is removed from the flask it will be found that there is no excess of rubber and no filing or scraping to be done. It is necessary only to rub the surface with a stick wrapped with bibulous paper, dipped in a dish of pulverized pumice moistened with water, alcohol, or best of all, with chloroform. This can of course be followed with chalk and a piece of chamois skin or flannel, and the rubber bleached by placing in a dish of alcohol in the sun. By this method there is saved the time usually spent in "waxing up;" in waiting for the plaster in the flask to harden in order to remove the wax; in packing, heating up and screwing down the flask; and the time required to scrape and finish up the piece, also preserving the hard vulcanized surface-portion of the rubber.

Method of Modeling Gum Festoons.—Having vulcanized the base-plate, as in (1) and (2), the teeth are waxed on as usual; but instead of carving up the gums, lay a strip of moldine over them close to the necks of the teeth. Punch holes in the semicircular piece of very thin rubber-dam and stretch this over the teeth, care having been taken not to leave any wax between them. Now stretch the rubber-dam back over the moldine, which by a little manipulation through the rubber forms the gums very nicely. Where necessary the rubber can be turned back and moldine added until proper contour is given. The piece is now flasked with the rubber-dam still covering the moldine. When the flask is opened and the wax washed out the rubber-dam is removed, carrying the moldine with it. The piece is packed in the usual way. After vulcanizing it will be found that the gums have a smooth surface of good form and that there is a happy absence of that dirty little piece of rubber down in between the teeth, which by the ordinary method gives so much trouble.—*Ohio Dental Journal, June, 1897.*

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INCISOR OR CUSPID CROWN. By W. H. Brown, Nashville, Tenn. The only way I can make an open-face crown for a cuspid or incisor, that will fit perfectly, is as follows: Take, for instance, a

central incisor on the right side, the left lateral and cuspid are out, and you want to make an open-face crown for the central. First, get your strip of gold a little wider than the tooth is long, and a little longer than will go around the tooth. Bring it around the tooth and with a pair of flat pliers pinch and draw tightly around it until it fits perfectly. Hold it tight and with another pair of pliers, of the same kind, draw or pinch the gold down at the point of the tooth. Stick a pin through the edges, remove and solder together. Trim edges and cut out the face in the usual way. You will find that it fits perfectly and will not take five minutes to make the crown in this way. If the tooth is broken off at one corner build it up with cement.—*Ohio Dental Journal, June, 1897.*

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PORCELAIN INLAYS. By N. S. Jenkins, D.D.S., Dresden, Germany. At last I realized that a new material must be evolved, one which combined the good qualities of both porcelain and glass, and to its evolution my laboratory has been devoted for the past three years. The problem I set myself was, to make a low melting porcelain, which should retain its color, could be melted to a perfect fusion in a gold inlay, and which would have a clean edge so hard that it would not fracture in setting, nor in enduring the strain of mastication. This result I have at last attained.

Our most successful experiments in pure glass were made by my partner, Dr. O'Brian. Among other things, he discovered that, after a glass filling had been melted, its surface could be immensely improved by placing upon it a thin plate of clear glass and melting once more. By this means a surface was obtained so smooth, and so nearly representing the enamel, that the most beautiful operations could be made. Only, as in all glass fillings, contours were not certain, overflow easily occurred, and perfect manipulation required much care, experience and skill. Besides which, the porosity of the underlying glass made permanency of color uncertain. This method is, however, an extremely valuable one. Every now and then a case occurs where the conditions require just such a surface as can be obtained only in this manner.

In making an inlay filling, the first step is to properly prepare the cavity. There must be no undercuts, or at least only in one direction, and the edges must be clearly defined. A perfect impression must be obtained, employing gold-foil for the purpose. Platinum, how-

ever thin, and however carefully used, is too intractable for accurate work. For my method, gold-foil No. 30 is in almost all instances sufficiently thick. For very large and complicated cavities No. 40 may be taken. The piece of foil must be generously large, and carried, with cotton or spunk, first to the deepest part of the cavity, leaving the edges free; for, of course, the foil will not stretch, but tear, if it is confined to any exterior point as it is being pressed home. Then another and somewhat larger piece is packed into the cavity, and when this is quite full, the edges are then made, and pressed or burnished until they are perfectly smooth. If there is too much overlapping margin, it can be trimmed away with a sharp lancet. The cotton or spunk must thereupon be removed, when, with a sharp-pointed excavator, inserted at the most favorable place within the cavity, the gold can be loosened and gradually worked out in unimpaired condition. The impression thus made is laid upon a creamy bed of powdered asbestos and water, at the bottom of a small, long-handled platinum or nickel tray, which is gently tapped until the gold has sufficiently imbedded itself in the asbestos. The tray is now held over the blow-pipe and the asbestos completely dried, a condition usually indicated by a loosening from the bottom of the tray. The contents of the tray being sufficiently cooled, the powdered porcelain mixed with water — distilled water is preferable—is placed in the impression, care being taken to have it come exactly to the edges, but not to overflow at any point. It is then built up somewhat higher in the middle, or on those parts which it is desired to contour, an excess of material being necessary to compensate for the consolidation attendant upon melting. After some experience it is possible to get, in most instances, the exact fullness required in one melting, but there is no objection to adding more porcelain and remelting, except loss of time. When the inlay has been properly packed, a cover, which has an opening through which the process can be observed, is put upon the tray, and the whole placed in an asbestos-lined muffle, open on one side, and with a round hole in the bottom. Through this hole a gentle heat from the blow-pipe is turned on, the moisture in the powdered porcelain thus being slowly evaporated, not boiled out. Then the finger is placed upon the spring of the blow-pipe, and under the action of the bellows the heat is very gradually increased until the mass is completely melted. The finished inlay is then removed

from its asbestos bed, and the corners of the gold-foil gently turned backward until it comes away in a complete piece. Any particles of gold which may adhere to the inlay can be easily removed with the point of an excavator. After trying it in the cavity, to make sure that the fit is perfect, the inlay is usually grooved on the inner surface, generally with a small diamond disk. Slight undercuts are made in the cavity, everything is perfectly dried, and the inlay is set with some reliable phosphate of zinc mixed to a thick cream. A little of the phosphate should be smeared within the cavity, as well as upon the bottom of the inlay, the latter being carried at once gently into place. In an approximal cavity I use a piece of tape to bring the filling into position, and at the same time remove the surplus phosphate. In other cavities any convenient method may be employed to remove the surplus, but in all cases it is best to exert the final pressure with a bit of wood, except where it happens, as sometimes in a labial cavity, that the thumb-nail can be easily used. With firm but gentle pressure the inlay is held in place for a few minutes, when it can be left alone, with the rubber-dam in position, until the phosphate is completely hardened. In many cases it is safe to cover with varnish, dry with hot air, and remove the dam after a few minutes, but this detail is a matter of judgment. At a subsequent sitting any slight surplus of overlying phosphate is carefully removed with a fine-pointed excavator, when it will be found that the line between the inlay and the edge of the cavity is no wider than such cracks as one often finds in the enamel.

The beauty of this work is equaled only by its practicability. Accurate contours can be made. Of course it is not applicable to all approximal cavities, but in places where its use is indicated there is no doubt about the condition of the cervical margin, that weak point in obscure cavities, and especially where the pulp is nearly exposed, if intelligently and accurately made it will stand even better than gold, since it is not supported by, but assists to support thin and frail edges. The operation, although requiring considerable time, is far easier for the patient to bear than the packing of gold. The time of the patient may be saved by taking the impression at one sitting, and making the filling in the patient's absence. To be sure, by carefully following the directions, any ordinary dentist can in many instances make in this manner a beautiful and enduring operation, but it is by no means a cheap and easy method. Its

proper employment requires the highest qualities of skill, judgment and taste. Only experience will show how the obstacles peculiar to this process are to be overcome, but when this method is once mastered it gives to the competent dentist a range of operations so wide as to greatly increase his interest in his work, as well as his usefulness to his patients, who immensely appreciate the advantages of this treatment.

Time fails to enlarge upon the use of this porcelain in pivot teeth, crown and bridge work. With it all the visible part of a broken-down molar can usually be restored, with a platinum ring about the neck of the tooth. Malformed roots can be securely crowned, with or without a ring, according to the case, and where the tooth must be thin, because of the closeness of the bite, a far stronger tooth can be made with this material than with a soldered gold backing. When a tooth thus united to a platinum pivot is put under the hammer, it will be found that the tooth will fracture before this porcelain. One advantage is found in being able to solder rings, pivots and pins of platinum with gold, and then melt the porcelain without fearing that the gold will melt or flow.—*Dental Register, June, 1897.*

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BRITISH TEETH ON THE DOWN GRADE. By Charles Fox, L.D.S. Cause 1. There used to be a popular belief that sweets were the cause of bad teeth, and our childish appetites were oftentimes checked by warnings dire and dreadful, as to the effects of the seductive caramel or acidulated drop. So many other reasons have however been given publicity of late, that one finds patients losing faith in that sweetmeat bogey. I would lay great stress, however, on the enormous increase in the use of sugar in the United Kingdom during the last two decades, and without actually bracketting cause and effect, call attention to the fact that the increased consumption of sugar coincides with the deterioration of teeth.

During the first forty years of the century, the rate of consumption was singularly stagnant. At a price of 10 d. per pound, folks were content with about 18 pounds per head annually. In 1870 we find the duty reduced, and 47 pounds indulged in. This rapidly rose to 54 pounds per head in 1876, and in the last twenty years it has steadily increased, until the enormous weight of nearly 100 pounds of sugar is used on an average by every man, woman and child in the United Kingdom. Huge confectionery manufactories

are the growth of our own times, the outcome to a large extent of cheap sugar. Fruit entering, as it rightly should, more freely into the diet of the people, is deluged with sugar when preserved, and even bread is very often rendered tempting to the present taste of the race with sugar. The many millions of pounds of tea require extra sugar to sweeten the cheering draught.

I recently examined the teeth of several union children, tabulated their condition and compared them with an equal number of middle-class patients of the same age. It was astonishing the extent to which decay had advanced in the mouths that had daily access to cakes, jam and candy, and passed the little paupers by on the other side. The unionists had sweets perhaps twice a year, on treat days, and their great mugs of tea and milk were but scantily sugared. The work-house fare was plain in the extreme, but its dental results were very fine. Dentist and toothbrush, plus excess of sugar, were no match for nature and simple fare.

One schoolboy gourmand, who required much dental care every three months, and in whose mouth one's most conscientious stoppings seemed always undermined by fresh ravages, went into the navy. For three years he was cruising in the Mediterranean. There being few chances to add to the plain tack of H.M.S., these three years were less fruitful in profit to the dentist than any preceding three months. Several patches of arrested decay seemed to demonstrate that the altered condition of the secretions conquered the tendency to caries very soon after the confectioner was left behind. Yet in many ways his schoolboy environment was superior. His rooms were better ventilated, his outdoor exercise well nigh as great, his studies no more irksome, and his medical and dental supervision far greater. But the boy's stomach was tormented by an excess of sugar and the oral cavity directly and indirectly vitiated by acidity. —*British Journal of Dental Science, June, 1897.*

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PHOTO-MICROGRAPHY. By Mr. W. H. Must. Read at the Students' Society, National Dental Hospital. I will describe what I consider a student's camera, and the way to use it. The camera before you I made by getting a second-hand half-plate camera without a lens, removing the short bellows and replacing it with one having an extension of thirty-six inches; the object of having such a long extension is to get magnification. The lens end of the

camera is screwed on to the fore part of the baseboard, while the ground-glass screen and bellows move backwards and forwards, and can be fixed at any point by means of a screw at the base of the screen. A brass rod by which focusing can be done runs along the side of the baseboard, and is attached by means of a rubber ring to the fine adjustment of the microscope. There is really no need of this, because when using low powers the bellows are not extended very far, and you can easily turn the fine adjustment with your hand and focus the picture on the screen; even when using an immersion lens and the bellows are extended, by placing a looking-glass opposite the screen the image of the specimen is reflected in it and can be focused. On the projecting board in front of the camera rests the lamp, condenser and microscope, the latter having its legs let into the wood to keep it steady. A camera like this costs about twenty-five shillings; I mention this because people are under the impression that photo-micrography is a very expensive hobby.

To take a micrograph, bend the drawtube of the microscope till it is horizontal, adapt a piece of cardboard or rubber washer to the tube, so that it fits close to the orifice for the lens and excludes all light from the interior of the apparatus. Place the lamp opposite and about ten inches away from the substage condenser, remove the mirror, and, looking through the microscope, focus the edge of the flame, moving the lamp about till the edge is right in the center of the field, then remove the eye-piece and line the inside of the drawtube with black paper; this is to prevent a "flare" spot. Place the bull's-eye condenser, with its convex side towards the microscope, between the substage condenser and the lamp, its distance from the latter being within its own focal length. This is a very important point, for if you place it farther away than its focal length there is a marked loss of light. Shut the diaphragm, leaving only a very small aperture, and by carefully moving the bull's-eye condenser concentrate the light through it, look at the screen and see if the lighting is uniform all over the field; if it is not, move the condenser, or it may be necessary to turn the wick of the lamp a little. Too much stress cannot be laid on the illumination of the object and centralization of the condenser; when you get a bright field, mark position of lamp on the board, also its height, for future use.

Now place the specimen on the stage and draw the bellows of the camera out till the light just covers the whole screen; by turning

the fine adjustment focus the image till it is nice and sharp; time can be saved by tilting the microscope up, finding the place you want to photograph, focusing it and then getting the microscope into position again. Put the double back containing the sensitive plates in place of the screen, interpose a piece of cardboard between the diaphragm and the lamp, draw out the shutter, and, by removing the cardboard, expose the plate; the time of the exposure varies with the amount of light and the objective used; each one must find out the time for himself. A good way is to expose a part of the plate, say for ten seconds, then draw the shutter out a little more and expose that part for the same time, and so on until the whole plate is exposed, develop the plate and see what part has had the right exposure. Keep a record of all the exposures and the result, and in a very short while one can make certain of the time.

Always use the cardboard to shut off the light before sliding in the shutter, and when a plate is being exposed, if there is any vibration caused by a carriage passing or by people walking about the house, shut off the light by means of the cardboard, removing it when all is quiet; the least vibration will spoil the sharpness of the negative, so it is always best to use the ground floor.

The iris diaphragm must be used carefully; there is no rule for it, simply open and shut it till you get the best definition. I have found it better to have less light with a longer exposure, than a bright field and short exposure. An ordinary microscopical lamp burning paraffin oil is quite good enough; if a little camphor is put in the oil the light is rendered more clear and active.

Specimens that are counter-stained or deeply stained may require screens or colored glass, placed between the illuminant and the specimen, the color of the glass being the complement of the color of the specimen. Violet and blue rays are more chemically active than the red and yellow. After this point it is ordinary photography.—*British Journal of Dental Science, June, 1897.*

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CANCER OF THE LIP. By C. L. Gibson, M.D., New York City. Read at New York Odontological Society, Feb. 16, 1897. The treatment of malignant growths throughout the body has of late years been attended with markedly better results as regards the preservation of life. For instance, within a period of ten years the prognosis of cancer of the breast seemed so bad that a most experi-

enced and judicious surgeon raised the question whether we should not better do our duty by our patients by refraining from operating on them, while on the other hand, within a few years long series of well authenticated cases have been recorded by reputable men with twenty-five to thirty per cent cures. This happier result has been attained chiefly by two methods, the constant effort to extend the scope of radical operations within the limits of safety and physiological requirements, and the better education of the profession in general to the necessity of early recognition and treatment of such malignant growths. The limits of operative boldness would seem now to have been reached, but much missionary work yet remains to be done in regard to early treatment. The work of dissemination of the knowledge concerning surgical possibilities as well as the limitations of surgery must be undertaken by surgeons, and the treatment of malignant disease will show more favorable results in proportion to their efforts in this direction. Influenced by this latter motive, I have ventured to ask your consideration for this brief study of one form of cancer which is quite likely to be seen by the members of the dental profession before the surgeon is consulted. Cancer of the lip has been in existence on an average a year and a half before professional advice is sought for it. As a large proportion of persons of this community, certainly the well-to-do class, consult a dentist within that period, I am sure the opportunity must frequently be given to the members of your profession to be the first to recognize the presence of a new growth on the lip.

Cancer of the lip belongs to that class of new growths which are called epitheliomata. These epitheliomata are of two types, differing both in their histological constituents and in their clinical course. The superficial form is distinguished by being composed chiefly of small epithelial cells, pursuing a chronic course, seldom being attended with danger to life. It is found almost exclusively on the face, and is now proven to be identical with the rodent ulcer as described by the older authors. The deep-seated variety is the one that interests us, as cancer of the lip is its typical representative. It represents a polymorphous type of growth, and has a tendency to attack surrounding tissues and glands, but is less often the cause of metastatic growths than cancer of internal regions. The disease, like cancer in general, affects mostly those in advanced middle life. I have found two interesting observations on extremes of age.

Gangolphe reports the case of a boy of fifteen, of excellent health, from whom he removed a growth of the lip the size of a dime, proven by careful microscopical examination to be cancer. Jalland removed a cancer of the lip in a man aged one hundred and two years, who made a perfect recovery.

The disease up to the present time is essentially a prerogative of men. It is hard to say how often it does occur in women. In common with many other surgeons, I have never encountered a case in a woman. When it does occur in the female, the upper lip is more often the seat of the disease, while in men the upper lip is affected in little more than one per cent of the cases. There is no satisfactory explanation why the upper lip should be so frequently attacked, for the mechanical causes held responsible for cancer of the under lip are, with the exception of shaving, present in both cases.

As regards the causes of the disease, to traumatism in general is assigned the chief place. The lips are so easily abraded, cracked, chapped, burned, and otherwise maltreated that abundant sources of irritation are furnished. Smoking, especially of a clay pipe, must be accounted a factor, as such a history is given in the majority of cases. Still it must be acknowledged that the number of cancers of the lip to the number of smokers is infinitesimal. Winiwarter removed a cancer from the right side of the lip in a pipe-smoker who had always held his pipe in the right-hand corner of the mouth. He presented himself five years later with a similar process on the left side, where in the meanwhile he had been accustomed to hold his pipe, not liking to press on the scar.

As regards the element of heredity, there is an overgrowing tendency to belittle its importance. It is undoubtedly true that the belief in heredity, so strong until recent years, was based to a great extent on tradition. The efforts which we are all making to place medicine on the plane of an exact science discourage the acceptance of vague histories concerning cancerous relationship; and subjected to an exact scrutiny, the family history of cancer is reduced to so small an extent as to be looked upon by many as only an interesting coincidence. I must acknowledge at this point that in no class of cancerous tumors have I so often encountered such striking family histories of heredity as in cancer of the lip.

I call attention to the recent rather startling observations that have been recorded of cancer being acquired by living in dwellings

previously occupied by the subjects of cancer,—cancer houses, as the term has come to be applied. This is a subject of which the layman may be in a position to obtain information more readily than the physician, and should be made known in order that we may acquire any possible evidence on the subject that may aid us in combating a disease that has so many helpless victims to its credit.

Cutaneous epithelioma occurs chiefly on the face and head, these localities furnishing the site of eighty-five per cent of all the epitheliomata occurring on the surface of the body. There are nine points on the face and head recognized as the favorite site of the disease. Of these the lips are attacked in over fifty-five per cent of the cases, so that epithelioma of the lip, it will be seen, furnishes between forty and fifty per cent of all the cutaneous cancers, and by its frequency alone becomes an important affection.

Epithelioma of the lip generally occurs on one side of the median line; the left side is rather more often affected. It usually begins as a well-defined nodular thickening just at the junction of skin and mucous membrane. This thickening soon becomes an evident prominence, and can be felt to infiltrate the surrounding tissues. The growth tends to spread toward the surface, where its nature soon becomes apparent. The epidermis is at first preserved; it is generally very thin, smooth and glistening, and reveals the presence of a net-work of distended capillaries. The surface will vary; sometimes it has a smooth, oval shape, or it may be segmented or raised up in minute nodular prominences. Its consistence is usually dense, here and there of a cartilaginous feeling, but occasionally presenting areas of softening. The majority begin to ulcerate in the course of a few months, but may not do so for years. The destruction of tissue may either begin spontaneously in the interior of the tumor, or, what is more frequent, the external layer of epithelium is raised by a superficial hemorrhage, and losing its vitality is easily destroyed by the most insignificant traumatism, and the result is a superficial erosion without marked loss of substance. The ulceration now presents a reddish granular surface covered with minute areas of hemorrhagic infiltration. Contact with the atmosphere soon results in the formation of a dirty brownish crust which when removed causes a little bleeding; under the crust is a semi-purulent slimy deposit, which in turn dries up and forms a new crust.

When the ulceration starts from within outward we have quite

a different appearance. The central portion assumes the character of a dusky blue swelling, surrounded by an area of hyperemia and of edema at the periphery. There is local heat and pain, softening and fluctuation can be made out, and finally the infiltration breaks down, resembling the development of an abscess. The base is seen sprinkled with small milk-white prominences shining like mother of pearl, and an absolute characteristic of cutaneous cancer. The edges are infiltrated and undermined.

When ulceration has once set in there is a rapid increase in growth, and in a remarkably short period of time the entire lip may be destroyed and the adjoining tissues invaded. The nearest chain of lymph-glands are the seat of deposits before any extensive local destruction begins, though they become involved at a much later period in this form of cancer than in other localities or organs, such as the breast. It is usually two to four years before enlargement of the neighboring glands can be detected, but it must be borne in mind that these glands when so recognized are already several times their normal size. The process on the other hand may be marked by evident glandular deposits in three to five months from the first appearance of the disease. Metastases are, however, of great rarity, and when occurring are generally found in near rather than remote organs. Death is therefore rarely due to general manifestations of cancer, but is consequent on exhaustion due to prolonged absorption of septic materials and disturbances of nutrition.

As regards the diagnosis, a typical case can scarcely be mistaken for anything else; the combination of the indolent ulceration and characteristic infiltration shading off into the surrounding tissues without a definite demarkation stamps the condition as epithelioma. Cancer of the lip may be mistaken for a simple wart where no ulceration occurred, or, what is more likely, a primary chancre of the lip, for we know of late years that the occurrence of extra-genital chancres is much more common than is generally supposed. Mr. Treves has given a table of the differential diagnosis that is sufficiently instructive to be given in full:

Chancre. Occurs at any age. More frequently in females. Rather more frequently on upper lip. Painless. Regularly outlined smooth elevation if seen before ulceration has commenced. Induration (if present) distinctly circumscribed. Induration precedes

ulceration. Develops in days or weeks. Implication of a number of glands simultaneously within a short time of appearance of the chancre. No perceptible smell. Secondary syphilides—*e. g.*, roseola, plaques, etc. History of exposure to syphilis. Slight elevation of temperature common. Yields readily to mercury.

Epithelioma. Occurs after forty years of age. Almost invariably in males. Almost invariably on lower lip. Often lancinating pain. Irregularly outlined ragged prominence or ulcer with everted edges. Induration not uniform, varies in different parts, and is more diffuse. Induration follows ulceration. May be months in developing. Glands implicated one by one months after appearance of epithelioma. Smell often offensive. No secondary syphilides. No history of exposure to syphilis. Temperature normal. Unchanged for better by mercury.

As regards the treatment, there is only one—thorough excision with the knife provided the condition is still operable. The extensive forms require complicated plastic operations whose technical details I will not inflict on this audience. In the earlier cases, where no glandular infection has occurred, the classical V-shaped excision of the entire thickness of that portion of the lip affected is a very simple and satisfactory procedure attended with perfect cosmetic results, the scar not being visible except at close range, and the rosebud appearance first presented by the mouth soon disappears as the lip stretches. It can be perfectly and painlessly performed under two per cent cocain anesthesia. The amount of healthy tissue to be removed varies with the extent of the infiltration and the rapidity of the growth. Usually not less than a quarter of an inch on either side is taken away. The chief point of importance in the union of the lip is to secure perfect apposition of the vermilion border. As the parts are rendered anemic by pressure during the operation the recognition is not always easy, and a preliminary study of the peculiarities of the lip's outlines prior to any interference is desirable. The sutures should be of fine silk, and if removed quite early will leave no scar. Caustics should never be employed in treating this form of cancer, and should in general be allowed to become the monopoly of charlatans.

Prognosis. It may be said in general that cancer of the lip when removed at an early period of its existence is in a large proportion of cases forever eradicated, but if allowed to gain any headway is

seldom amenable to permanent cure by operation. The prognosis differs, however, considerably with the variety of the cancer and with the individual. A very superficial warty growth developing first in advanced life, say after seventy, may persist as such or with very little change during the individual's lifetime, while a cancer in a man of forty that begins to ulcerate almost as soon as it makes its appearance will make such progress that in a year or less its advances are beyond surgical relief.—*Dental Cosmos, June, 1897.*

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THE CLINIC. By E. P. Beadles, D.D.S., Danville, Va. Ocular demonstration is the best teacher. When a child sees a thing he will remember it easier than if only told about it. Men are simply grown-up children. A desire to learn something new is the foundation upon which all of our dental associations rest. The clinic has been the favorite method of imparting knowledge. Many men attend the annual meeting for the clinic alone. They can read the papers and discussions in the journals, but cannot see the operations. This being true, the very best methods for conducting clinics should be devised. It is evident that the plans which have been in use by most of our societies have served their day. With a small number present, each man may be able to see what is going on; with a large number present, nobody gets any satisfaction, the operator is crowded and worried, often failing to do himself justice.

The idea should be, not to have so many clinics, not so many operators, but good ones. Some men can teach, others cannot. There is a secret in being able to impart knowledge, to explain a thing so that the hearer may go home and perform the thing for himself. If those who have our clinics in charge for this year will select a few good men of known experience as operators and with ability to tell what they know, and will carry out the following rules, success will be theirs:—1. Have provided only one chair, and have that placed upon a raised platform near the president's seat. 2. Have only one clinic in progress at one time. 3. Let the society be in regular session during the clinic, with the president and other officers in their places. 4. Let each operator furnish beforehand to the manager of the clinic a list of whatever he needs to carry out his work. 5. Have placed on the platform a good blackboard.

Now with the members in their places the clinician is introduced and his intended operation announced. With the patient in the

chair and with free use of the blackboard, he explains fully what he intends to do. At a certain time those who wish to examine the case are allowed to come up, one or two at a time; this over, the operator proceeds with his work. If it will consume some time another subject may be taken up by the association, business transacted or a paper read, with the understanding that the operator can have the attention of the members whenever he desires it.

We are not students at college, and do not need to see all operations right through to be able to perform them; a suggestion, an illustration, an explanation may be all that is needed in many cases, or a question asked and answered when all can hear at once. The manager will be able to do his work with greater satisfaction, having only one clinic on hand at a time. By the old plan he is at the beck and call of every operator, and is wanted in a dozen places at once. But possibly the most important point covered by the adoption of this plan will be the effect upon the operator. As it is now, good men often refuse to clinic, well knowing the difficulties under which they must labor. The operator knows that at best he can explain his method to a few only, and perchance the man next to him may be showing something very novel, and has the "crowd." The first operator has spent time and trouble to get ready, and is showing something really valuable, but there is no one to see it. He finishes in silence, steals off out of sight wishing "he hadn't."

By the plan here outlined no one who has been invited to clinic will be neglected. He will have the ear of the entire association, he will feel stimulated to do his best, and knowing this will prepare his best. Our prominent men will feel it worth their while to accept invitations to clinic, everything will be done in an orderly way and "satisfaction guaranteed."—*The Dental Cosmos, June, 1897.*

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THE GENERAL CONSIDERATION OF PLATE WORK. By W. M. Bartlett, D.D.S., St. Louis, Mo. Read at St. Louis Dental Society. Last year there appeared in the *Ohio Dental Journal* an article headed "The Way to Elevate Dentistry to a Profession." The writer says that to accomplish this dentists should discontinue that part of the mechanical branch of dentistry which pertains to the making of plates, and should turn this class of work over to some person who has learned the trade of plate-making, just as a surgeon turns his patient over to a cork-leg maker after he has

amputated a limb. He says that professional dentists should only prepare mouths for plates, and then their duties in that line should cease. Why should they not prepare cavities for gold and send their patients to a gold pounder, just as they would send their patients to a plate maker? To properly prepare a mouth for a successful plate one must be a successful plate maker himself, and the idea of the tooth-filling dentist as to how the mouth should be prepared might not meet the approval of the plate maker. Many a poor devil who has had a limb taken off by a surgeon of no mechanical ideas has had to go through life without the aid of an artificial one, while had that surgeon made a study of cork legs he would have left a stump which would have met all the requirements.

The gentleman seems to think if he should be found making plates in his office he would lose his professional standing. I do not think that a man who makes a study of both branches of dentistry will lose his professional standing any sooner than one who devotes his whole attention to operative dentistry. I say to be a successful dentist one should make himself as proficient as possible in both branches, and in doing so he need have no fear of losing either his professional or social standing.

Again, I do not think one branch is to be looked down upon more than the other. The man who makes a success of the one is entitled to as much praise and as high standing in the profession as he who makes a success of the other. The advance of dentistry to its standing of to-day is wholly due to the men who were thorough mechanics, as they have done more to elevate the profession than those who have had only one idea. It was the dentist who was a mechanic who mastered the science of orthodontia. 'Twas the man who was a mechanic who gave us our first crowns. And all the numerous advances made in dentistry in recent years—advances which have really placed the calling of dentistry in the rank of a profession—originated with men of mechanical ability who first began to develop their mechanical ideas by making plates in some laboratory such as our fine gentlemen of to-day seem to regard as a disgraceful addition to their offices.

I am sorry to see dentists as a whole losing their interest in the plate-making department. I say plate-making department, because I think it is the only way to distinguish the two branches, as one is as much mechanical as the other. The only reason I can ascribe

standing—the better, for upon mechanism rests the further claims which we as dentists wish to advance.—*Dental Review, June, 1897.*

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DR. SCHROEDER'S EXPERIMENTS WITH FORMALIN. The following are notes from a paper read before a meeting of dentists at Hanover, Germany: Much of the present theme has been given before the last gathering of German naturalists, but I deem it important to detail to you some of the experiments which I have conducted with formalin, since many useful medications, I hope, will soon be made from this substance. If flowers be placed in a solution of formalin, they will keep for a considerable period; the color of the flowers does not withstand the action or influence of the solution, but they remain fresh and retain their perfume. The yellow posies preserve their color upwards of two years when subjected to a solution of formalin. Formalin has a peculiar influence on hens' eggs; if placed in this liquid the albumen of the egg becomes a thin fluid, while the yolk of the egg is converted into a hard substance as though it had been subjected to boiling water. Upon immersing the egg in boiling water, even for a long time, the albumen does not coagulate. Another property of formalin, besides its antiseptic powers, is that it acts upon animal flesh, causing it to become tough and very hard, without inducing any change of the microscopic structure or causing any contraction or shrinkage. This calf's heart which I show has been soaked in formalin; it has no disagreeable odor and is sufficiently hard to admit of cutting with a knife.

Relative to the employment of formalin in the practice of dentistry, I can say but little at this time, as my experiments thus far have been foreign to dental operations. If you apply this solution upon a diseased pulp it institutes great pain for upwards of two hours and even for several days. I have used it with suppurating pulps with excellent results. The formalin has too decided an action upon living pulps, but if we add a sparing amount of Amyloform the pain soon subsides and the real action of the formalin is not impaired. Later I experimented with a mixture of Kobalt, with a slight amount of the amyloform, and in this case the pulp was painlessly destroyed. I have learned that in order to get the full strength of the formalin it must be kept free from the contact of air, and I would recommend that you store it in a small bottle where you can from time to time add to its fresh quantities.

for such a state of things is that it takes longer to become proficient in the art of plate-making than in that of tooth-filling. This is easily shown by the work done in our colleges. A green student may enter a college, and after taking three courses I venture to say that he can fill a tooth that would do him credit and make at a plate that would do him discredit. I say make at a plate. I need not go that far, because he can hardly take an impression to make a plate upon.

Another cause I can lay at the doors of our dental colleges. They do not make the proper attempt to teach this branch of dentistry. The students do not seem to take to it as they do to filling teeth. They would take to it if they were compelled to make, say ten plates before they could come up for examinations, just as most colleges exact a certain number of fillings. It is true that if the colleges exacted ten plates from each student I fear they would play a losing game, and, no doubt, this is one of the chief reasons why colleges do not compel students to take a greater interest in such work, fearing that the failures would soon bankrupt them. Not only are they not exacting enough in regard to their students, but in the past few years they have cut down lectures in mechanical dentistry (as they call it) to only two sessions. If a professor can lecture before a class for three sessions on tooth-filling, one could surely lecture on plate-making and all its side branches for four sessions. As a rule, except the professor, there is no one capable of teaching this branch as it should be taught. In most of our colleges they have demonstrators whose knowledge of the subject is very shallow. Generally they are kept-over graduates on a salary ranging from twenty-five to fifty dollars a month, so that it is no wonder that dentists look down on this branch as degrading to the profession.

Taking into consideration the lack of proficiency of six-tenths of our graduates of to-day in this branch of dentistry, it is not to be wondered at that their failures in the making of gold, porcelain and rubber plates, properly constructed appliances for the correction of irregularities of the teeth, bridges, crowns and numerous other devices disgust them with it and force them to come out and condemn it as a degradation to dentistry.

It is a sorry state of affairs that we have come to this, and the sooner we cease to aim at such a high standing—so high that we are asked to discard the main prop of our calling to attain professional

Letters.

MISSOURI STATE ASSOCIATION MEETING.

ST. LOUIS, July 13, 1897.

To the Editor of the Digest,

DEAR DOCTOR: The meeting of the Missouri State Dental Association, held at Pertle Springs, July 6 to 9, was one of the best meetings ever held in the state, notwithstanding the intense heat. The papers read were all good and created a great amount of discussion. The young men of the profession outnumbered the older members to such an extent that it seemed to be a young men's meeting. Nine papers were read, seven of which were by young men who had never presented a paper before. The papers will all be published in the DIGEST.

Among the old war horses who never miss a meeting were Jas. A. Price (the only charter member present), J. F. McWilliams, A. C. Griggs, D. J. McMillen, Wm. Conrad, Frank Slater, J. T. Fry, W. W. Birkhead, and a few others not quite so old.

Our new State Board of Dental Examiners was called to Jefferson City on Monday, July 5, by the Governor, where the board was organized. Dr. W. M. Bartlett, of St. Louis, was elected president, and Dr. S. C. A. Ruby, of Clinton, secretary. The board will hold another meeting in St. Louis early in September, at which time they expect every dentist in the state who can lawfully do so to register.

Owing to the extreme hot weather the society adjourned on Thursday at 11 p. m., to meet at Meramec Highlands, fifteen miles west of St. Louis, on Tuesday after the 4th of July, 1898. The following are the officers-elect for this year:—Dr. Frank Slater, President; Dr. F. M. Fulkerson, 1st Vice-President; Dr. H. A. Cress, 2d Vice-President. Executive Committee, Drs. J. H. Kennerly, D. B. Lindsley, F. F. Fletcher. Board of Censors, Drs. B. L. Thorp, J. T. Fry, R. R. Vaughan. Committee on Ethics, Drs. W. F. Sharp, F. H. Achelpohl, E. B. Crain. Publication Committee, Drs. J. D. Patterson and H. S. Lowry. Committee on New Appliances, Dr. F. F. Fletcher. Supervisor of Clinics, Dr. William Conrad.

Yours fraternally, MISSOURI.

I employ formalin in all cases of putrescent pulps, in a day or two the canal-contents are absolutely odorless. In cases of this kind it is not necessary to remove by any mechanical method the putridity, but merely place a drop of the formalin in the canal and by means of a broach drive the medication further up the canal. I advise that you be very careful not to bring this agent upon the lips or gums of the patient, as its influence is widespread and will cause the skin to peel off in small pieces. After the canal ceases to yield a fetid odor, wash out the contents and fill the root with formalin and cement or plaster-of-Paris. I have employed this method for three years and during this period have registered no ill effects.

Dr. Kirchoff employs formalin when amputating pulps in bicuspids and molars. When the coronal end of the pulp is exposed he applies to it a mixture of formalin and zinc-oxid, then covers this treatment with cement and proceeds to build over all the permanent filling. He has treated teeth thus for some months and is meeting with great success.—Trans. by Dr. B. J. Cigrand, from *Deutsche Monatsschrift fuer Zahnheilkunde, June, 1897.*

CALCIUM PERMANGANATE IN DENTAL SURGERY.—As a powerful and at the same time harmless disinfectant, d'Almen considers that calcium permanganate holds an important place in dental surgery, particularly as affording a means of obtaining perfect antisepsis, both before and after operation. Employed as a gargle in 2 per cent solution, it is most serviceable after extensive operations in the buccal cavity.—*L'Odontol.*

THE STOMACH DURING SLEEP.—Dr. Schule tells us that from examination of the contents of the stomach obtained in sleep, evidence is forthcoming that acidity is greater during this period and motility lessened. Persons with digestive trouble, especially those suffering from hyperacidity, should not sleep immediately after eating. This also seems to us to be a further argument, if one were needed, in favor of cleansing the teeth before retiring.

HOW TO RECOGNIZE EYESTRAIN.—Patients suffering from eyestrain frequently have headache, the pain being located in the eyeballs and in the frontal region. Headache from nasal disease is more likely to be in the morning on awakening, while headache from eyestrain comes on later in the day, after having used the eyes. Symptoms of irritation of the eye are an indication of eyestrain; the patient complains of burning, itching, and frequently of watering of the eyes, having used them for some close work, such as reading or sewing. Recurring styes, chalagions, if not clearly traced to some general dyscrasia, are almost always due to eyestrain. In persons between the ages of forty and fifty, drawing in the eyes, lids running together, inability to use the eyes at night, are the first symptoms of presbyopia, commonly called "old sight."—*Elec. Med. Monthly.*

PHILADELPHIA LETTER.

PHILADELPHIA, July 17, 1897.

To the Editor of the Digest,

DEAR EDITOR:—I ran up against a fellow dentist in the street and his greeting was "I say, have you seen Crouse? He is in town." "No, I have not seen him. It will not surprise me to hear next week he is in Oregon." The next day a dentist said "Dr. Crouse was in my office. He was announced as wishing to see me for two minutes. He certainly did not stay five, and in that time he talked protection, supply, union of the American and Southern, piano-wire broaches, porcelain teeth, et cetera. After he had gone, a lady in the reception room, who had been a listener, remarked "I'll bet that man just loves to fight. I should want him on my side every time."

The editor of the *Dental Cosmos*, in his letter of June 20th to the DIGEST, takes exceptions to the contribution of "your anonymous Quaker correspondent." As Quaker is a regular correspondent to the DIGEST and well known to its publisher, his communications are not anonymous. To show that the editor of the *Dental Cosmos* is prone to misapprehensions in regard to anonymous correspondence, we quote from the *Dental Tribune* of March 4th, 1893. "In publishing a notice of the *Tribune* the editor of the *Cosmos* discusses some of its contents in the following terms: 'We question the propriety of admitting the kind of matter embodied in the New York Letter in the issue of January 14th, for be the statements there made true or untrue, the innuendoes placed upon them are in any event scurrilous, and their anonymous character only serves to intensify their unrighteousness.' We do not care to discuss the question of the propriety of publishing 'anonymous' communications. The *Tribune* has never done so and probably never will. The name of the author of the New York Letter is known, hence his communications are not anonymous; he is one of the most honorable members of the profession in New York."

Articles frequently appear under the head of "editorial matter" which were not written by the editor of the journal in which they appear. Such articles are quite as much anonymous as the communications from the Quaker.

The statements in the DIGEST'S Philadelphia letter, to which the editor of the *Cosmos* objects, are very plain and capable of a direct denial if they are untrue, and when a gentleman writes an answer of

a page of printed matter, without taking the trouble to make such a denial, most people would believe that the assertions were true, and if there were any further proof needed to justify the statement in my previous communication, it could probably be found in the tone of the reply and in the coarse epithets which have been used as a substitute for direct statement. Your readers will be perfectly able to determine the weight which is due to a reply couched in the terms of this one, terms which are not often heard in discussions among gentlemen.

QUAKER.

ST. LOUIS LETTER.

ST. LOUIS, July 16, 1897.

Dear Digest:

There is a tradition over here in Missouri that when the fathers of dentistry of our state met to form an association they decided to hold the annual meetings immediately after the Fourth of July, because at that time the farmers are busy with the harvest and the country dentist can be absent from his office with a quiet mind. To be sure we discovered long ago that it is not a good time for the meeting of the state association, because we are pretty sure to have the hottest days and nights of the season between the first and fifteenth of July, but so bound are we by this tradition that the annual resolution to change the time of meeting is always voted down or tabled, and we adjourn to meet next July and suffer again. The only possible release for us rests with the country member himself. The city dentist is rather glad of an excuse to get out of town for a few days just at this time. He has had two months or more of rushing to finish work for patients who are going away for the summer, and is glad to get away from the office. He has probably attended the meetings of two or three neighboring states earlier in the season and does not feel it a serious loss if the heat makes clinics almost an impossibility and earnest discussion too much labor to be indulged in. But to the country member, who has no local society, who cannot go to several state meetings, and is loyal to our own association, it is a loss, and to him we must look for deliverance from this tradition. Of course, it is a poor fellow, whether from country or city, who can go to any such meeting of dentists at any season and not learn something that will help him in his work, but if we want our state meeting to be the

greatest possible help to every member we must have it at a season when every member is at his best and has some energy to spare for the interest of his profession.

We have just spent the three hottest days of the season at Pertle Springs, at the meeting of our Missouri State Association. It was so hot that most of us could neither sleep nor eat and we felt so impatient at the heat and general discomfort that we wanted only to get through and go home. As the extreme high temperature prevailed all over the country we could not blame our place of meeting for our sufferings, and yet the resolution to change the time of meeting was "laid upon the table."

However, I would not have you think that we accomplished nothing at our meeting. There are always a few energetic souls who do their duty regardless of the weather, and thanks to these we had some good clinics and papers. We even had our regular little scrap about the colleges, but fortunately there was a peacemaker from over in Kansas with us, and the two friends who were calling each other bad names at the close of one session were sitting together in great good humor at the opening of the next.

Our own irrepressible was suppressed for a moment, but we could not endure the monotony which followed, so a treaty of peace was arranged and he was soon running the meeting to the delight of "the boys."

Our new state board held their first meeting and laid out their plans for work at this meeting of the association. There is a general feeling of satisfaction with the appointments made by the Governor for this board and a desire to assist them in every way possible. The new law will have a favorable start in such capable hands.

We were cheered to see our old friend Gray and hear his voice again. He deserted us for Tennessee eight years ago, but comes back looking so prosperous and happy that we must forgive him. We had one visitor from Texas, another from Arkansas and Kansas, but not one from Illinois. When we heard of the heat in Chicago we did wish you had joined us at Pertle Springs, but it was too late then to send for you. Next year we are to meet at Meramec Highlands, near St. Louis, when we hope you will be wise enough to make your plans to be with us instead of staying in Chicago during the heat.

I have not told you a word of our honored president, Dr. Orr,

nor how well Dr. Price, our faithful treasurer and retiring committee on law looked, nor what delightful wives some of our young men have, but you should have been there to see all this for yourself. With best wishes for next time,

Yours truly, ST. LOUIS.

NEW YORK LETTER.

NEW YORK, July 16, 1897.

To the Editor of the Digest,

MR. EDITOR:—Larger New York is 98°. Hot! But the steamers sail all the same, carrying many weary dentists. Dr. Bodecker and family head the list, including the newly fledged dentist, his oldest son, graduated this season from Ann Arbor. The young doctor goes to Moscow to attend the International Medical Congress, returning to the German University for special lectures. During the summer the Doctor senior will attend to the needs of the Imperial Family dentally. He has taken a new and fine outfit of pure American manufacture for the occasion. None of us is too modest to decline such an opportunity, although these things do not carry the eclat that they did when Dr. Thomas Evans first secured the golden goose, for out of it he has secured the golden egg, that counts as nothing else does in this age of gold.

We are reminded that Dr. Thomas' wife's death was announced lately in the New York *Herald.* All earthly honors and treasures grow pale under such a loss. May the Doctor have the only source of comfort which can really bear the name of comfort, and that is the divine.

Dr. Jarvie and daughter also go to England for a wheeling over the roads of Old England. Dr. Benson and wife are taking an annual continental tour. This has proved a satisfactory trip in point of health. For several years phthisis sought for a fatal grip on him, but it has been foiled. Dr. B. F. Hodson, with son and daughter, now young man and woman, are off for sea and old country scenes. Dr. Bonwill gave us a parting call prior to his four months' travel in many lands. He goes primarily to be a guest of the Court dentist at St. Petersburg and will give an exhibition of all his inventions and also clinics of his chief features of practice. Dr. Bonwill is truly a marvel of genius, but we are reminded of the oft-repeated quotation that our dear coworker, Atkinson, so fre-

quently and unreservedly emphasized—"What have we that we have not received?" We think this is far too much neglected, i. e., to remember to give praise to him who is the giver of every good gift. Humanity is not the crowning virtue of mankind. However, we are glad with Dr. Bonwill that he has gotten a tangible reward for his diligence. Dr. Hardy, of Summit, New Jersey, will visit Moscow during the summer, while the Congress is in session.

We recently witnessed a very interesting operation by Dr. Lenox Curtis for a patient of Dr. Hardy, the removal of a bony cyst extending from the center to nearly the extreme end of the superior maxillary. It was successful, only cocain injection being employed. Dr. Curtis will summer with his wife in the upper Catskills.

Illustrated journalism is giving us both the outside views of proprietors and the inside exhibits of their offices. Quite a novelty. We like it, for we have advocated it, and it is well done. Both Bonwill and Leon Williams make a good showing, they are an ornament to our profession and we have not a few more. We don't think as some do, that we should wait till we are out of sight. Again let us say, had we a journal we should give something in pictures that would make all our friends, though on the editorial page we might possibly dissipate some of the good feeling. We get a little chance as a letter writer, and we are not selfish—we don't want the whole world. Editorials on horseback are piquant, and their replies also. We do not think editorial virility is anything that it should be, for there are subjects that should be met with a strong line of exposure and defense; things are sprouting and there will be an awful harvest. Some one says, this is putting it strong. Well, we mean it. We have had facts confided to us that we are not going to use, but they will surely come to light.

We see the appointed place for hiving the hornets is Atlantic City. Their program is certainly unique and promising. Rumor says there is not much rush for the mountains. We forgot to say that Jersey promises a full illustrated account of their annual meeting in the journals; it ought to be fresh reading for the dog-days.

There is much on tap for the summer meetings and we hope for results that will assist advanced movements. There are many things which should be done. The offer of the Army and Navy Museum should not go by default, nor a once-in-four-years' meeting at Washington in September or October.

We hear that Professor Taft has been very sick with pneumonia, and hope he is up and out again. "Good men don't all die young." Magitot's place is vacant; his writings have been emphasized on various subjects in our interest. It was our pleasure to receive from him his book, "The Maladies of the Teeth," which was translated by a physician, Dr. C. F. Mills, and published either in the *Archives* or the *Western Dental Journal.* Dr. Ingersoll, another of our faithful and very industrious coworkers, has joined the increasing throng beyond. Such men are examples for our younger fraternity to follow. Strange how few are really such.

Eighty-nine years and still in practice proves that all dentists do not die young. Dr. Avery, as seen in the July number of the *International*, gives a rare face at such an advanced age; we think it suggestive of prudent living as well as a busy life.

The editorial of the same journal we would say is worthy of consideration, coming as it does from the president of the American. The remodelling on "new lines" stands out to the front, also ignoring the legislative spirit and keeping directly in the interests of the object of associative purpose along the pathway of professional growth. We emphasize the word professional, for we are bold to say that it has been trailed deeply in the slime of selfish politics, and the quicker the past can be buried out of sight the better.

There is a strong desire for the attainments of intellectual simplicity, but we were never further from it than now, as can be seen in the discussions on "The Treatment of Devitalized Teeth," in the July number of the *International.* If this is to come of Stomatology it is about time to call a halt. Let us have ability, pure and simple, demonstrated, and then we shall hope to deliver the poor suffering patients into the hands of a younger and wiser coming profession. We see a possibility in the thought of sections bringing demonstrated practice on the simplest lines. Let us get our offices rid of the drug-shop odor. It is not needed; we have evidences of rare talent, let us encourage it.

Dr. Williams' reply to Dr. Andrews in the July *Cosmos* is a matter of much comment in and about Greater New York. Very few know or suspect the cat in the meal; there surely is one, but we do not think Dr. Williams knows the trick. Though he may not know it, it does not destroy the force of his reply.

Cordially, NEW YORK.

The Dental Digest.

PUBLISHED THE

TWENTY-EIGHTH DAY OF EVERY MONTH.

Editorial.

THE MEETINGS AT OLD POINT COMFORT.

The time for these meetings is near at hand, and from present indications there will be features of unusual interest and importance. The presentation of the work of the sections promises to be much better than usual. The various associations convening there will bring together the representative men from all parts of the country. The question of forming a national organization truly representative of the whole profession will be decided. Altogether it is a meeting which no one can afford to miss, and we would urge you to attend.

DIPLOMAS WHILE YOU WAIT.

The following notice recently appeared in a Texas paper:

PERSONAL. Workers desiring to earn quickly degree of M.D. or D.D.S., address Lock Box 196, Chicago, Ill.

A dental student, who shall be nameless, thought he would investigate and so wrote to the address given. He received the following letter in reply:

J. Armstrong, M.D., President and Treasurer. Chas. M. Hovey, L.L.D., Secretary.
J. H. Randall, Ph.D., M.D., Vice-President.

INDEPENDENT MEDICAL COLLEGE.

Incorporated Under the Laws of the State of Illinois.

PEOPLE'S INSTITUTE, COR. VAN BUREN AND LEAVITT STREETS.

Mr. — ———— Chicago, July 2, 1897.

Dear Sir:—Yours inquiring how to secure the degree of D.D.S. received. The right to any degree should depend upon the scholarship and ability of the person seeking it. We have become aware that there are a great many students of medicine and dentistry who have spent much time and been to considerable expense with a preceptor or in college to prepare themselves to earn a livelihood, but from some turn in their affairs were unable to com-

plete the intended course. A large percentage of them are able and worthy and only need proper encouragement to get in a way of self support instead of waiting in idleness for the impossible to happen so they can start on strictly technical lines.

They have been diligent students but lack of means prevented them from getting far enough advanced to graduate and get the degree sought conferred upon them. We are satisfied from long experience in educational work that many of them are really better qualified to conduct a safe practice than hundreds who have graduated after taking a four years' course. Independent Medical College has taken a solid stand in behalf of such students and has opened a way for them to graduate on furnishing proof of attainments either in Dentistry or Medicine satisfactory to its faculty. If not up to where they ought to be it furnishes them an opportunity to rapidly acquire the knowledge they may lack by giving them instruction day time or evenings, by lectures and clinics at the college, or a practical course by mail. The course can be commenced at any time. The time you will have to give to study before you can graduate will depend on your present knowledge. We will put you through as fast as you can go. We will be pleased to give you any further information you desire or would be pleased to have you call and see us.

Very truly yours,

J. H. RANDALL, Ph. D., D.D.S., M.D.

A FEW CONSIDERATIONS IN THE MANAGEMENT OF PROXIMAL CAVITIES IN MOLARS AND BICUSPIDS.

Under the above heading we publish in this issue a paper by Dr. C. N. Johnson. The able plea therein contained for better or more thorough preparation of cavities, where decay has taken place on the approximal surfaces of molars and bicuspids, can be studied to advantage by a very large majority of practitioners of the present day.

We published a paper by Dr. G. V. Black in the February issue, entitled "Recent Improvements in Filling Teeth." Both this paper and the one by Dr. Johnson have in view the same thing, viz., a better or more thorough preparation of the proximal surfaces. The paper by Dr. Black took up the question of the anatomical relations of the teeth to each other and to surrounding parts, the physical characteristics of the teeth and their ability to withstand stress, the

cause and nature of dental caries, the plan of manipulation and the material to be used in filling teeth. Furthermore, a cause was given for the loss of teeth from destruction of the sockets (pyorrhea).

Although he raised four or five of the most important questions connected with dentistry for discussion, the chief point of his paper related to the treatment of the proximal surfaces. He advocated contouring the interproximal space when there is a disposition of the proximal surfaces of the teeth to caries. That is, he advised cutting away the entire proximal surface of tooth substance clear to the free margin of the gum; the buccal and lingual surfaces also are to be cut away sufficiently to place the line of margin so it will be constantly cleansed by the food in process of mastication, and the parts thus removed are to be restored with cohesive gold, contouring sufficiently to protect the interproximal space, and so shaping that the excursions of food will keep the surface clean.

The paper in this issue by Dr. Johnson shows that he takes the same extreme views and advocates removing the unaffected tooth substance to and beyond the free margins of the gums, buccal and lingual, so that no portion of the tooth substance on the proximal surfaces shall be left exposed to the influences of decay, and a perfect contour or restoration of the teeth to their original form by cohesive gold. Dr. Johnson goes more into the detail of shaping or forming the cavity than Dr. Black, illustrating his theory by cuts and descriptions which should be studied carefully. The subject of a better understanding of the shaping of cavities, so as to result in the greatest amount of permanency, is sure to be one of the active topics discussed in the near future and must go with the causes of dental caries.

While we are not prepared to accept in their entirety the propositions laid down in these papers, and should not make the practice therein advocated so universal, yet comparing these propositions with what was known as the "Arthur" theory for the prevention of decay, by the making of V-shaped spaces (self-cleansing), and remembering the evil results which followed the issue of that little book, "Prevention of Decay of the Teeth," we should much prefer going to great extremes in contouring, and with cohesive gold. However, judging from continued observation for many years, not more than one out of twenty operators has the ability, either as regards skill of manipulation or power of endurance, to carry out

successfully the practice advocated, called by Dr. Black "Recent Improvements in Filling Teeth," to say nothing of what per cent of the community can afford to furnish that important stimulant, money compensation, such as the strain and fatigue to the operator deserves.

Nevertheless, believing that great skill in our profession depends upon constant execution of just such service as advocated so ably by Dr. Johnson, we urge the adoption of the greatest amount of this kind of service consistent with existing circumstances, as the way to do the greatest amount of good to both operator and patient.

Our pages are open to, and we urge a free discussion of this most important subject of dentistry.

THE DENTAL REVIEW'S POLICY.

In reply to the editorial criticism made upon this journal and its editor in the July number of the *Dental Review*, we shall merely state that the last word which could be said in reply has not been said by any means. Criticism given by one journal of another, which deals with methods or principles, and which is made in no spirit of bitterness or malice, is legitimate and not unwholesome; but when it descends into personalities it is not only unprofitable, but beneath the dignity of any reputable journal.

We are surprised that our friend, the editor of the *Review*, should have so far forgotten himself in the heat of controversy as to have been betrayed into a personal attack. Had he cast his insinuations against one who is less a friend, much could have been said in reply, the opportunity is not wanting. But life is too short to be spent in exchanging billingsgate, so until our friend has recovered his equanimity the discussion will be discontinued.

THEORY VS. PRACTICE FOR STUDENTS.

In this issue will be found two papers, one by Dr. A. H. Butterfield, and the other by Dr. W. M. Bartlett, both of which are rather severe criticisms on the lack of practical training which students in dental colleges receive.

How correct these criticisms of the college training are we shall not attempt to say, but there is undoubtedly great room for improvement, and we believe that the practical training is altogether too meager. The universal use of burs in the engine to prepare cavities, and the practice of crowning badly decayed teeth, and often

those which are not much decayed, has taken much of the opportunity for valuable and needful practical training away from the student. The manipulative skill acquired by the constant use of hand excavators and chisels, and the condensation of gold fillings by hand pressure are almost lost to the young men entering the profession.

It is bound to be detrimental to the student to allow him to use all the improved appliances, although they are of so great help to the practitioner, and the practical skill of the future members of the profession is bound to be lowered when the student in college is permitted to use them and thus be deprived of hand training in this branch. These time-saving adjuncts to our calling are used altogether too much by men in practice, and surely the student while in training should be compelled to do most of his work without them.

Notices.

NORTH DAKOTA STATE BOARD.

The North Dakota State Board of Dental Examiners held a meeting on June 8 and 9, at Fargo, North Dakota. The officers elected for the ensuing year were: R. B. Foster, of Grand Forks, President, and H. L. Starling, of Fargo, Secretary.

NORTHERN OHIO DENTAL SOCIETY.

At the annual meeting, held at Put-in Bay, June, 1897, the following officers were elected for the ensuing year: President, L. P. Bethel, Kent; Vice-President, L. L. Barber, Toledo; Corresponding Secretary, W. T. Jackman, Cleveland; Recording Secretary, F. W. Knowlton, Akron; Treasurer, W. H. Fowler, Painesville.

LIST OF LATEST DENTAL PATENTS.

584,839. John E. Andrews, Harrison, Ark., Dental Flask Press.
584,847. Robert H. Booty, Toronto, Canada, Automatic Plugger for Filling Teeth.
585,126. Gideon Sibley, Philadelphia, Pa. Dental Handpiece.
585,358. Frank D. Gould, Port Richmond, N. Y. Tooth Brush.
585,494. Clyde E. Williams, Springfield, Mo. Dental Engine Mallet.
585,845. Harry F. Jones, Camden, N. J. Handpiece for Dental Engines.
586,023. John Fletcher, Bristol, England. Appliance for Use in Soldering Artificial Teeth to Mouth Plates.

TIME-TABLE OF TRAINS TO OLD POINT COMFORT

Trains on the Pennsylvania Railroad leave and arrive as follows

Leave Chicago 10:30 a. m., arrive Baltimore 12:40 p. m., arrive Washington 1:42 p. m.

Leave Chicago 3:00 p. m., arrive Baltimore 6:00 p. m.

Leave Chicago 5:30 p. m., arrive Baltimore 4:15 p. m., arrive Washington 5:32 p. m.

Boats leave Baltimore, via Bay Line, 7:00 p. m., and Washington, via N. & W. D. C. S. S. Co., 7:00 p. m., arriving Old Point Comfort 7:30 a. m.

Leave Chicago 10:30 a. m., arrive Philadelphia 12:50 p. m.

Leave Chicago 3:00 p. m., arrive Philadelphia 5:47 p. m.

Leave Chicago 5:30 p. m., arrive Philadelphia 4:17 p. m.

Leave Philadelphia 11:10 p. m., arrive Old Point Comfort 8:00 a. m.

It will be seen that those taking this route can go by way of Baltimore, Washington, or Philadelphia, as the fare and-one-third rate can be obtained for any of these points. For further information address, City Passenger Agent, Pennsylvania Railroad, 248 Clark St., Chicago.

COLORADO STATE DENTAL ASSOCIATION.

Following are the clinics held by the above association at its eleventh annual meeting, at Colorado Springs, June 8-10, 1897:

Dr. W. L. Bartlett, Colorado Springs. Contour Gold Filling Without Grooves or Retaining Pits.

Dr. S. Davis, Denver. Making Sets of Instruments for Removing Deposits in Pyorrhea.

Dr. H. B. Hayden, Colorado Springs. Method of Root Filling.

Dr. P. T. Smith, Denver. Gold Filling Without Rubber Dam; Non-Cohesive Foil.

Dr E. R. Warner, Denver. Illustrated Talk on Points in Practice.

Dr. W. T. Chambers, Denver. Removable Bridge

Dr. F. G. Yates, Chicago. Binding with Gold a Cuspid Tooth.

Dr. E. W. Varley, Pueblo. Obtunding Sensitive Dentin by Cataphoresis.

Dr. A. C. Watson, Denver. Making and Filling a Cavity with Gold in Artificial Tooth.

Dr. C. V. Shoop, Central City. Inserting Gold Filling in Artificial Tooth with Blow-Pipe.

Dr. W. E. Griswold, Denver. Removable Crown for Supporting Saddle Plates and Bridges.

Dr. C. F. Dodge, Denver. Combination Cement and Amalgam Filling.

Dr. W. K. Sinton, Colo. Spgs. Cement as an Aid in Anchoring Amalgam.

Dr. W. S. Twilley, Baltimore. Separating Flasks by Steam Pressure.

Dr. A. B. McGee, Denver. Immediate Regulation of Superior Cuspid Tooth by Luxation.

Dr. W. H. H. Brown, Denver. Porcelain Inlay.

Dr. A. H. Sawins, Denver. Gold Root Filling.

Dr. A. G. Dille, Denver. Gold Filling with Non-Cohesive Gold.

Dr. J. N. Chipley, Pueblo. Gold Filling with Smooth Plugger Points.

Dr. F. C. Chamberlain, Colorado Springs. Low Crown and Bridge Work.

Dr. J. H. Parsons, Boulder. Amalgam Contour Work.

Dr. B. A. McGee, Denver. Anchoring Gold Filling by Aid of Cement.

Dr. J. Allen Smith, Colorado Springs. Use of Cataphoresis in Dentistry.

Dr. L. S. Gilbert, Denver. Excising Crown, Removing Pulp, and Immediate Root Filling.

Dr. Edgar Palmer, Denver. Paper—The Value of Dental Legislation.

HENRY B. HAYDEN, Sec'y pro tem.

HARVARD DENTAL ALUMNI ASSOCIATION.

Monday, June 28, 1897, was observed as "Alumni Day," and was a unique occasion in the history of the association. Clinics and demonstrations were given at the school building, and the work of the freshmen, junior and senior classes for the past year shown. Cases of fracture of the jaw, with the patients present, were shown, and plaster casts with appliances used; likewise in cleft palate and orthodontia. One hundred and fifty-two visitors, aside from patients, were recorded on the register and then shown over the building by the reception committee. Professor Fillebrown successfully performed an operation in staphyloraphy for a child about six years of age. Dr. D. M. Clapp gave an X-Ray exhibition, showing its utility and practical value in dentistry, with patient present in chair. Various entertainments were given during the afternoon to those desiring to enjoy them—a barge ride through Cambridge, a bicycle run through the parks, and a theater party. A goodly number availed themselves of these privileges.

At the twenty-sixth annual banquet, held at Young's Hotel, Boston, at 5 o'clock, 88 persons gathered Reports were submitted showing the flourishing condition of the association. During the progress of the dinner the following officers were elected for the ensuing year: President, Joseph T. Paul, '91, Boston; Vice-President, Frederick Bradley, '86, Newport, R. I.; Secretary, Waldo E. Boardman, '86, Boston; Treasurer, Harry S. Parson, '92, Boston. Executive Committee: Waldo E. Boardman, '86, Boston; William P. Cooke, '81, Boston; Frank T. Taylor, '90, Boston. The council is composed of the officers of the association.

The oration was delivered by the guest of the evening, Rev. George Hodges, A.M., D.D., Dean of the Episcopal Theological School of Cambridge. Dean Smith, of the dental school, described the rapid growth of the school of late years and stated that $48,000 had been secured for the school in eight years. The graduating class numbered 32, and incoming freshmen class 30. During the year there were 132 students, with two post-graduates. Chas. W. Berry, A. B., spoke for the class of 1897 in a humorous vein.

WALDO E. BOARDMAN, Sec'y.

News Summary.

NEW STYPTIC.—Antipyrin and tannin rubbed together produce a sticky compound very useful as a styptic. It may be applied with a sponge.

INTERNATIONAL EXHIBITION OF DENTISTRY.—An international exhibition of dentistry, dental surgery, and hygiene of the mouth is to be held at the Marlborough Hall, Polytechnic Institute, London, in September of this year.

INJECTION OF CHLOROFORMED GUAIACOL IN SEVERE NEURALGIA.—Subcutaneous injections of 15 to 60 drops of a solution of chloroform, 10 grams, and guaiacol, 6 grams, always soothes the pain, improves the neuralgia often and occasionally cures it. The bottle should be sheltered from the light and kept in an opaque paper. The injection should be made as close as possible to the nerve trunk, once a day, or once in two or three days. These injections have also been found effective in small surgical operations as an analgesic.—*Presse Med., April 24.*

THE IDEAL MEDICAL JOURNAL.—The ideal medical journal is one not controlled by a clique, and not published in the interest of a medical school or of a faction; it should be independent, not a partisan publication. Original articles should be published and a fair price paid the authors. The publishing of the proceedings of medical societies is of doubtful propriety; we all grow weary in seeing so much trash. The editors should be leaders in reforms; should be aggressive, not negative, individuals.—*Wilmer Brinton, in Maryland Medical Journal.*

[This would also apply to dental journals.—EDITOR.]

AFRAID OF CHICAGO DENTISTS—GOVERNMENT SENDS A SOLDIER TO KANSAS CITY FOR TREATMENT.—Washington, June 29.—For some unknown reason the war department is discriminating against Chicago dentists. The following paragraph appeared in the army orders issued by the adjutant general to-day:

"Post Quartermaster Sergeant Charles Campbell, now at Fort Sheridan, Ill., will be sent to Kansas City, Mo., for dental treatment, upon completion of which he will rejoin his station at Fort Sheridan, Ill. The quartermaster's department will furnish the necessary transportation."

The transportation of this soldier to Kansas City and return will cost the government about $20.—*Times-Herald, June 30.*

PRESERVATION OF FLOWERS.—The following is a very old method of keeping flowers without loss of color: Dry some very fine, pure siliceous sand in the sun or oven; then take a wooden, tin-plate, or pasteboard box sufficiently large and deep, and place your flowers inside erect; then fill the box with sand until the last is about an inch above the top of the flowers. The sand must be run in gently so as not to break the flowers. Cover box with paper or perforated cardboard and place it in sunlight, oven or stove; continuous heat gives best results. After two or three days the flowers will be very dry, but will have lost none of their natural brilliancy.—*Jour. of Horticulture.*

ALCOHOL AND SUICIDE.—At the recent international Congress of Psychology Dr. Muller gave an interesting historic sketch of the etiology of self-murder and, by means of an elaborate series of statistics, traced to alcohol the primary cause of its marked increase of late years. The author estimates the number of suicides in Europe at 50,000 a year, thus showing that the evil is increasing at a greater rate than the population. The most favored month for suicides is June, the least December. Early morning is chosen in preference to the night; the mechanic class furnishes the largest

number of subjects, and the peasant the least. Dr. Muller considers brandy the most pernicious form of alcohol, and traces to its influence the blunting of those weapons which in the struggle for life are the most necessary to sustain the conflict.—*Westminster Gazette.*

PLATINUM SILVER ALLOYS.—At a recent meeting of the Chemical Society a paper was read on these alloys, and their solubility in nitric acid, by Mr. John Spiller. He found that platinum silver alloys would not dissolve as the text-books say they should. Accordingly he had made definite alloys of these metals, and treating them with pure nitric acid he found that no more than 1 per cent of platinum in the mean could be dissolved with the silver. In the discussion, Mr. Vernon Harcourt threw some doubts on the exact composition of the alloys; and Mr. Friswell suggested that the old statements were due to the use of nitric acid containing sulphur.—*Brit. Jour. Dent. Sc.*

THE PRESS AND DENTAL ADVICE.—The ladies' column in the various papers is frequently embellished with advice concerning the teeth, often good but sometimes amusing. One paper in "Teeth Don'ts" says: "Don't have a dentist use his foot-engine to remove tartar without first trying the end of a match-stick wet and dipped in powdered chalk. With rubbing and perseverance this will almost always prove successful, and the first method, if resorted to too often, is injurious." Another paper recommends for the same deposit "muriatic acid or spirit of salt," and innocently remarks, "there are very few incrustations which will resist this treatment." We can readily believe it, and would add that there are very few teeth which which would resist it also. Another paper recommends "lovely woman" to use a dentifrice composed of "quinin, seven *drachms*, powder of rhatany, three drachms, chlorat of potash, three drachms." We should like to see "lovely woman's" expression after using this bitter compound, even if she could induce any chemist to mix it for her.—*Brit. Jour. Dent. Sc.*

PATHOLOGY OF MERCURIAL STOMATITIS.—Dr. Lang comes to the following conclusions, according to the *British Medical Journal:* (1) That, in accounting for the origin of mercurial stomatitis, three factors must be considered, namely, the mercury, the local cause, and the bacteria. (2) That the ulcers develop chiefly on those parts of the mucous membrane which are exposed to pressure from the teeth, such as the edges and under surface of the tongue, the mucous membrane of the cheeks, and the edge of the gums. But he does not agree with the generally accepted view of Ricord and Fournier that these ulcers develop on the side of the mouth on which the patient lies in bed. (3) That the ulcers most frequently form in the neighborhood of the incisor and cuspid teeth of the lower jaw. (4) That the saliva has no influence whatever upon the origin of the stomatitis, the salivation being due simply to a reflex action starting from the mouth. The salivation never precedes the stomatitis, and is often entirely absent. (5) That the mercurial ulcers of the mouth are the result of a necrosis of the mucous membrane, which is brought about by the disturbance of the nutrition of the tissues, consequent upon the action of the mercury and by the pressure of the teeth on certain portions of the mucous membrane—pressure gangrene.

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℞ Cocaine.....gr. 1-2
Sulphate of Morphine.....gr. 1-8
Sulphate of Atropine.....gr. 1-200
Sterilized water.....gtts. xxx
Mix and inject hypoder. gtts. v to xv.

"For convenience I have had the Cocaine, Morphine and Atropine made into soluble tablets by Parke, Davis & Co., of Detroit, and in this way solutions of any strength desired may be quickly and accurately made with little or no inconvenience. As a solvent I use distilled water containing from 8 to 10 per cent. Euthymol to keep it sterile. If desired to make a 2-per-cent. solution all that is necessary is to dissolve one tablet in 25 minims of water; a 1-per-cent. solution can be made by dissolving one tablet in twice this quantity of water, or 50 minims. A 4-per-cent. solution can be made either by reducing the water one-half or adding another tablet to the 25 minims, etc."

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